

Political Economy Analysis (PEA) of the Binding Constraints to Renewable Energy Investment in Ghana

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Table of Contents

List of Tables.....	2
List of Figures	2
1. INTRODUCTION	3
1.1 Background.....	3
1.2 Purpose of the Study.....	5
1.3 Structure of Report	7
2. REGULATORY ENVIRONMENT OF GHANA'S ENERGY SECTOR.....	7
2.1 History of Ghana's Power Sector	7
2.2 Ghana's Power Sector Reform.....	9
2.3 Level of Engagement of Actors in Ghana's Energy Reform	12
2.4 Energy Policies in Ghana	14
2.5 Institutional Environment of Ghana's Energy Sector	18
3. APPROACHES TO THE PEA STUDY	21
3.1 Methodology	21
3.2 Identification of Binding Constraints	22
3.3 Mapping of Recommended Potential Policies	25
4. DISCUSSION OF BINDING CONSTRAINTS TO RE INVESTMENTS IN GHANA VIA PEA .	27
4.1 Off-Taker Risk Constraint.....	27
4.1.1 Privatisation of the revenue arm of the power sector	28
4.1.2 Improved management of ECG	39
4.1.3 Establishment of a competitive off-taker market in the power sector.....	42
4.1.4 Establishment of guarantee systems for power producers.....	45
4.2 Faulty Power Sector Regulation Constraint	47
4.2.1 Establish a full-time high level IPP facilitator in the Power Sector.....	48
4.2.2 Establishment of a reliable and transparent full-cost tariff pricing system	49
4.2.3 Full Implementation of the RE Act (Act 832) and its enshrined subsidiary instruments	52
4.3 Lack of access to appropriate finance.....	57
4.3.1 Low financial portfolios of domestic banks	58
5. COALITION FOR CHANGE AND CONCLUSION.....	60
5.1 Coalition for change and imperative interventions for policy implementation	60
5.2 Conclusion	72

APPENDICES.....	74
References.....	76

List of Tables

Table 1: Contributions of stakeholders to Ghana’s power sector reform	13
Table 2: Mandates and Contributions of Key Energy Players in Ghana’s Energy Sector	19
Table 3: PEA Framework	22
Table 4: Potential policies to address binding constraints to RE investment in Ghana .	26
Table 5: Key interventions to achieve full implementation of potential policies	71

List of Figures

Figure 1: Constraints to renewable energy investment in Ghana.....	24
Figure 2: ECG’s workers demonstrate against privatisation.....	37
Figure 3: Coalition for Privatisation of revenue arm of the power sector policy	62
Figure 4: Coalition for improved management of ECG policy.....	63
Figure 5: Coalition for promotion of efficient technical practices within the distribution arm of the power sector through privatisation policy	64
Figure 6: Coalition for establishment of competitive off-taker market.....	65
Figure 7: Coalition for establishment of a full time high level IPP facilitator in the power sector policy	66
Figure 8: Coalition for the establishment of a reliable andtransparent full-cost tariff pricing system.....	67
Figure 9: Coalition for full implementation of the Renewable Energy Act (Act 832) policy	68
Figure 10: Coalition for establishment of RE financial instrument within domestic banks with lower interest rate.....	69

1. INTRODUCTION

1.1 Background

Until the 21st century, fossil-fuel had long dominated the energy scene as the main energy supply sources in the world. It accounted for about 80 percent of the world's total primary energy supply and 64 percent of electricity generation in 1999 (Jacobsson and Lauber, 2006). In recent times, however, there are increasing calls for a paradigm shift towards renewable energy (RE) generation (ibid). These calls are directed at mitigating the harmful effects of fossil fuel, notably climate change and also to promote socio-economic development and environmental co-benefits. Nonetheless, adoption of renewable energy technologies (RETs) is met with stiff oppositions, mainly from high profile energy players who obstruct the process and subsequently promote their interest (Barnett *et al.*, 2016).

A complete understanding of the reasons behind such oppositions is crucial for successful development of REs since that will help provide sustainable solutions to the root causes of low investment in RETs in a developing country like Ghana. A Political Economy Analysis (PEA) approach provides the necessary scope to unearth such reasons that fuel opposition and obstruction from stakeholders to the REs investment. Newell *et al.*, (2014), observe that a political economy analysis creates the avenue to get beneath the formal structures in a bid to unearth the underlying interests, incentives and institutions that foster or frustrate change. It could help consolidate interests of all energy players in order to facilitate the paradigm shift of accelerating the rate of development of RETs. According to Arndt (1983), Political Economy (PE) concept has a broad range of applications and offers in-depth analysis of what an ordinary study may not be able to tease out. For instance, a PE application to an organisation, could enhance a better understanding of the interaction between sets of major economic and socio-political forces that affect collective behaviour and performances within such an organisation (Archol *et al.*, 1983). In the energy sector, its application aids in the understanding of clean energy transitional issues (Baker *et al.*, 2014). According to Isoaho *et al.*, (2016) the recent application of PEA in energy related issues such as RE development is due to the fact that socio-technical literature failed to address adequately, the complexity and dynamics of clean energy development. A PEA should therefore, identify all forms of 'competing ideas,

interests, values and preferences; where specific groups and interests struggle over the control, production, use and distribution of resources; where conflict is negotiated; where bargains are struck; and where formal and informal political settlements, alliances and coalitions are made and broken' (Hudson and Leftwich, 2014: pp.6, cited in Barnett, 2014). The use of PEA should therefore help understand why socially and economically, desirable plans and policies are regarded being difficult to be implemented by policy makers (Barnett *et al.*, 2016).

Khan (2011), using a PEA approach, studied the situation under which a ruling government or a coalition in the power sector will promote clean energy development. According to him, a change towards clean energy transition is most likely to happen if governments or ruling coalitions face pressure from powerful groups in society who either are negatively affected by current non-renewable energy sources or stand to benefit from clean energy promotion. In the study by Tsebelis (2002), which focused on India, PEA was used to analyse the extent to which RE sources can be developed to their fullest capacity in the country. The study concluded that in order to bring RE development onto the policy arena, stakeholders with vested interest and veto powers such as the mining companies, coal power producers are critical to breaking strong oppositions to RE development.

In related studies, Fattouh and El-Katiri (2015) and Oda and Tusjita (2010) also used PEA to study factors that prevent governments and energy players from implementing certain economic and environmental policies. Citizenry agitations for fair share of natural resources (oils and fossil resources and grid extension) and the fear of losing elections by political actors emerged strongly as factors accounting for the non-implementation of such policies. The Middle East and North Africa (MENA) region lends clear evidence to this, in which the incessant protests and agitations waged by the citizenry for social equity and fair sharing of national resources have compelled governments to subsidise fossil-fuel energy sources (Fattouh and El-Katiri, 2015). In Asia, Commander (2012) observed similar occurrences, as political unrest and protests forced governments to keep prices of petrol and diesel substantively lower than international prices between 2008 and 2010. Such agitations from citizens and the fear of losing political power have the effect of influencing governments and policy makers to overlook viable RE development policies.

Oda and Tsujita (2010) argue that these protests and political unrest are more common in jurisdictions that lack democratic institutions. Brown and Mobarak (2009) further argued that countries without democratic political systems and institutional structures often use energy allocations and subsidies as tools for political advantage. Supporting this view, Scott and Seth (2013) submit that often times, in non-democratic states, electricity distributions favour industries than residential areas, hence, a source of the protest. Such motives and actions greatly affect the development of RE.

Gupta and Köhlin (2006) note that there is an opportunity cost of failing to sell energy at actual market prices, as such revenue can be used by government in diverse ways including, the reduction of budget deficit and the size of the public debt; increasing investment expenditure in cheaper, clean and environmental friendly energy technologies that can generate several socio-economic benefits. According to Sdravovich *et al.*, (2014), though these policies seek to promote social equity, they actually benefit people within the middle and upper-classes in reality. Indicative of the above literature is the increasing economic and environmental costs of fossil fuel, faced by many developing economies yet, RE sources in these economies remain well under-developed through inadequate investments. It is therefore imperative to understand the underpinning constraints to the least investments in these RE sources in developing countries especially, Ghana through the application of the PE framework.

1.2 Purpose of the Study

Provisions for RE development have featured in the energy policy landscape in Ghana for some time now. The current national Medium-Term Development policy for the country (Ghana Shared Growth and Development Agenda Two (GSGDA II) talks about the need to increase the proportion of renewable energy in the supply mix, particularly solar, wind, mini- hydro and waste-to-energy (NDPC, 2014). Strategies enshrined in this development plan document for the achievement of this policy target include: the implementation of the Renewable Energy Act, 2011, (Act 832); provision of access to waste-to energy technologies and facilitation of access to the grid for stand-alone renewable energy power plants. The current Energy Policy sets a policy target of 10 percent contribution of renewable energy to Ghana's energy generation mix by 2020

(MoE, 2010). In addition, there is the RE Act, 2011, Act 832, which gives the legislative backing for the promotion and development of renewable technologies. The Feed-in-Tariff (FiT), mini-grid infrastructure systems development and the RE Fund are provisions in Act 832 that demonstrate Ghana's quest to diversify its energy sources to take account of RE development.

Notwithstanding the existence of various policy and legislative instruments in support of RE development in Ghana, the contribution of RETs to the energy generation mix is still very low. At present, the share of REs' contribution to the energy generation mix is about 0.1 percent (Energy Commission, 2015). With less than four years to the elapsing of the Energy Policy target of 10% share from RE generation within the total generation mix, the attainment of this target is highly unlikely unless there is massive investment. Paradoxically, Ghana is signatory to several international agreements including, the post-2015 UN Sustainable Development Goals that aim at tackling climate change and variability through environmentally sustainable development pathways such as the enhancement of RETs. In practice, however, the development trajectories being pursued at the moment are unsustainable (UNEP-Ghana, 2013, UNEP-Ghana, 2015). Thermal-powered electricity generation, which in most cases is powered by fossil fuels, now accounts for 56.5 percent of installed plant capacity in Ghana, generating about 49 percent of total electricity (Energy Commission, 2016). In addition, Government envisions to increase electricity generation from thermal sources to about 80 percent in the next decade.¹ This leaves the future development of new renewables such as solar PVs, wind turbines, waste-to-energy in the balance despite the numerous policy instruments.

The main aim of this report is to unravel the complexity as well as identify the alignments of interests or alliances surrounding the advancement or blockage of the implementation of very fundamental policies, initiatives and strategies for RE investment and development in Ghana. The identification of these varied factors and actors in favour of

¹ <http://www.ghanaweb.com/GhanaHomePage/NewsArchive/Gov-t-projects-80-of-power-plants-to-be-thermal-430382>; <http://www.urbanafrica.net/urban-vocies/15378/> (Accessed: 15/8/2016)

or, against the key policies and initiatives will provide a leverage for the proposition of lasting solutions for the enhancement of RE investment in the country.

1.3 Structure of Report

This report is structured into five sections. Following the introductory section is section Two, which discusses the policy and institutional framework of Ghana's energy sector, the detailed historical accounts of energy reforms together with their policy directives, detailed account of the level of engagement, contributions, and policy influences of relevant stakeholders in Ghana's energy sector. Furthermore, it discusses three various policy agenda of relevant energy players in Ghana's energy sector. Section Three details the PEA methodological perspectives underpinning this study. It also outlines the genesis of how the binding constraints on RE investment in Ghana were identified as well as the mapping of promising policies with potential to address the binding constraints. Discussions and analyses of the proponents and obstructers of the key policies and initiatives fundamental to RE investment and development and, the supporting discourses are encapsulated in section Four. Section Five provides the conclusion, covering the prerequisite coalition interventions for change to bring about solutions for enhanced RE investments in Ghana.

2. REGULATORY ENVIRONMENT OF GHANA'S ENERGY SECTOR

Ghana's energy sector has gone through series of transformation since independence. In this section, the history of Ghana's power sector is first and foremost discussed, followed by the regulatory landscape of Ghana's energy sector. The section will then examine the contextual focus under which the energy generations were carried out: energy security, competitiveness, productivity enhancement, or low carbon development.

2.1 History of Ghana's Power Sector

Electricity generation in Ghana can broadly be classified into three main phases: 'before the Akosombo era' (1914 to 1966), the 'Hydro Years' (1966 to mid-1980s) and the 'Thermal Complementation Years' (from mid-1980s to present) (ISSER, 2005). The pre-Akosombo era had small scale electricity generation from diesel-powered generators.

These were owned by individuals, institutions and municipalities who could afford. The first public power plant was established in 1914 in Sekondi and was used to power the operations and activities of the then Gold Coast Railway Administration (GCRA) (ISSER, 2005). In 1922, small scale public electricity was established and operated by the then Public Works Department (PWD) to electrify major towns in Ghana. It covered the Accra Township and later in 1926, coverage was extended to Koforidua. Between 1927 and 1932 the PWD undertook a restricted evening supply arrangement system to Kumasi, Swedru, Tamale and Cape Coast Townships (ibid). During this era, determination of power generation were carried out solely by Ghana's colonial leaders, some public institutions (such as PWD and GCRA) and individuals who were resourceful to own and operate generator sets. Issues of climate change, renewable energy development, energy security, competitiveness and job creation were non-existent in the objectives of energy generation as they were not issues of outmost concern.

Energy security, job creation and to some extent renewable energy development, however, became more relevant in the 'Hydro Years' of power generation in Ghana. The desire to develop Ghana's huge bauxite reserves as part of having integrated bauxite and aluminum industry marked the beginning of the Hydro years (ISSER, 2005). This idea of developing a hydro dam was conceived by the colonial leaders, but was later developed under the administration of Ghana's first President, Dr. Kwame Nkrumah. Ajena was the initial site for the construction of the dam, but was later changed to Akosombo based on the recommendations from the engineers - Kaiser Engineers. This era saw a much more organised power sector, as cabinet passed the Volta River Development Act, 1961 (Act 46) for the establishment of the Volta River Authority (VRA). The VRA was mandated to foresee the construction of the Akosombo dam, its power station as well as the generation of electricity (ISSER, 2005). In 1967, a law (NLCD 125) was passed for the establishment of the Electricity Corporation of Ghana (ECG). This enhanced the setting up of vibrant institutions to oversee adequate production of energy that fed industries and businesses, and subsequently offered job opportunities in diverse forms. Energy security emerged as an important issue under this era because other initiatives were introduced to develop more hydro sites in addition to the Akosombo Power Plant (Edjekumhene, 2001; ISSER, 2015). The Kaiser Engineers company was contracted in 1971 to undertake exploratory

studies on possible hydro power sites and upon completion, recommended the construction of hydro power plant at Kpong. Unlike the pre-hydro years, this era marked the beginning of modern electricity generation in Ghana and did involve the participation of several stakeholders (ISSER, 2005). Kaiser Engineers Company from Chile, local public institutions (VRA and ECG), donor organisations (World Bank, USAID, the UK Government, the Canadian Government, the Saudi Government and European Agencies) all contributed to the development of hydro power in Ghana (Edjekumhene, 2001; ISSER, 2015). Accordingly, there were absolutely no or minimal agitations in the development of these power infrastructure within this era since the system was ready for bulk power production (ibid).

The thermal complementary phase of Ghana's power sector was highly driven by energy security issues and little about the development of other competitive energy resources. Climate change mitigation issues were of little concern as evidence shows that the development of the power sector within this era propelled the increase in the country's carbon footprint. According to Opam and Turkson (2000), this era was necessitated by the adverse effect of the prolonged drought that occurred between 1982 and 1984 in the country. On the basis of the drought, the generation potentials of the existing two hydro power plants (Akosombo and Kpong) were affected as the available water were far below the minimum operating level. (ibid). The shortage in electricity supply amidst the growing energy demand sector necessitated the major reformation of the power sector. Thus, in 1985, Government of Ghana commissioned the 'Ghana Generation Planning Study' (GGPS) to help identify alternative energy sources that will aid in reducing the vulnerability of the hydro power systems (ISSER, 2005). The study recommended thermal as part of Ghana's energy mix. Introduction of thermal plant, however, came at the point when its technical, economic and financial feasibility were reliably proven. Therefore, in 1999 the first phase (330 MW) of the Takoradi Thermal Plant was commissioned and this was subsequently upgraded to 550 MW in that same year.

2.2 Ghana's Power Sector Reform

Lack of competitiveness, private sector participation coupled with poor financial performance of Ghana's power sector were the driving forces for the reformation of the

power sector in the 1990s. According to Opam and Turkson (2000), such factors made Ghana's traditional financiers (e.g., the World Bank) reluctant in providing extra financial resources to support the thermal complementary phase of the power sector. The Ghana Generation Planning Study (GGPS) of the VRA estimated over US\$1.5 billion as the amount that was needed to finance infrastructure development at the electricity sector of Ghana (ISSER, 2005). This came at the time when the World Bank was unwilling to finance non-performing energy sectors in Africa unless issues of transparency, regulation, importation of services, commercialisation and corporatisation, commitment lending and private investment were met by energy sectors (Amoako-Tuffor and Asamoah, 2015). However, the motives for undertaking this reform were not only limited to the financial challenges confronting the sector. According to Opam (1995), issues of productivity losses of the overall economy as a result of the ineffective operation of the then power sector coupled with rapid power interruptions and high cost associated with back-ups necessitated the reform. Overwhelming debt burdens, supply-side preferences and under-utilised energy conservation practices were other factors that influenced the decision to reform Ghana's power sector (ibid). Increasing efficiency of asset utilisation, making necessary policies and institutional changes that will ensure economic equity were other supplementary motives for initiating the reform (Sustainable Energy Regulation and Policymaking for Africa, nd).

The Government of Ghana, upon agreeing to the terms and requirements of the World Bank contracted SYNEX Consulting Engineers of Chile to provide policy directions that could ensure competition and engagement of private investors (Edjekumhene et al., 2001; Amoako-Tuffor and Asamoah, 2015). In 1994, the firm proposed a new power market with policy directions that aimed at meeting the requirements of the World Bank. Free entry of private investors in the power generation side as well as decentralisation of the distribution arm of the sector; establishment of an Economic Load Dispatch Center that will be responsible for planning the operation of the system so as to minimise operating costs; existence of different distributors with each operating in a defined concession area were some of the policy recommendations by the firm (SYNEX Consulting Engineers, 1994 cited in Edjekumhene et al., 2001).

Following these policy recommendations, government issued a statement on 'Power Sector Policy' to serve as a framework that meets the regulatory and transparency requirements of the World Bank. This statement also proposed the formation of the Power Sector Reform Committee (PSRC) to oversee to the design and implementation of the reform (Opam and Turkson, 2000; and Edjekumhene et al., 2001). Obligations such as assignment of mandate for power generation, transmission and distribution, promoting competitive power market, regulatory framework for prices and tariffs revision, and establishment of institutional framework, rested on the shoulders of the PSRC (ibid).

The PSRC proposed a 'four-point Action Plan' to the government of Ghana in 1997 (Edjekumhene et al., 2001). These were:

- Introduction of new legislation to establish a new body to replace the then existing National Energy Board (NEB) who will introduce explicit regulations, rule of practice and standard of performance to governing the power sector;
- Introduction of 'open access' in the power sector to ensure healthy competition;
- Engineering all stated-owned private utilities into 'strategic business units' that can help improve accountability and financial management through public-private partnerships and joint ventures;
- Introduction of guidelines and procedures for transparency in tariffs settings.

According to Edjekumhene *et al.*, (2001) the 'Four-point Action Plan' was accepted by cabinet, with a few amendments. The proposed establishment of a single regulatory body was amended to two, which led to the setting up of the Public Utilities Regulatory Commission (PURC) and the Energy Commission (EC). Established by Act 538 in 1997, PURC regulates the provision of utility services in the electricity and water sectors in Ghana. The EC on the other hand is responsible for the granting of licenses and enforcement of compliance with regulations, a duty previously carried out by then NEB. These developments attracted the financial supports of the World Bank to build the first thermal energy in Ghana (Edjekumhene et al., 2001; Amoako-Tuffor and Asamoah, 2015).

The success of the reform was mainly due to the passage of the Statutory Corporations (Conversion to Companies) Act 461 in 1993 by Cabinet to encourage private sector

participation and investment in about 35 state owned companies, to help improve their efficiency, reduce government expenditure and interferences (Opam, 1995). The experience sharing and coaching of the SYNEX Consulting firm and the World Bank were instrumental as they provided the necessary guide, direction and financial resources for the development of the sector (ibid). The power sector reform resulted in benefits such as the injection of private sector finance into the sector to uplift the phase of Ghana's power sector, introduction of price competition, creation of enabling environment for development of small Independent Renewable Power Generator enterprises to isolated rural communities (ibid).

2.3 Level of Engagement of Actors in Ghana's Energy Reform

Table 1 presents a summary of contributions through the roles and level of engagements by key stakeholders during the reformation phase of Ghana's Energy Sector.

Table 1: Contributions of stakeholders to Ghana's power sector reform

Category	Stakeholders	Contribution
Donor	World Bank	<ul style="list-style-type: none"> ➤ Provision of financial assistance conditioned on meeting certain requirements such as debugging VRA, competitiveness promotion of Ghana's energy sector through private investors' engagement. ➤ Sharing of experience and guidelines for the development and adoption of the reform.
Government	Ministry of Mines and Energy (MME)	➤ They constituted the PSRC and were responsible for overseeing the planning and execution of the reform.
	Volta River Authority (VRA)	➤ Recommended Thermal complementation in Ghana's power system to government.
	Electricity Company of Ghana (ECG)	<ul style="list-style-type: none"> ➤ Proposed establishment of a separate institution to assume roles of the National Energy Board (NEB) and other mandates to improve the power sector. This proposal led to the establishment of the Public Utility and Regulatory Commission (PURC) and the Energy Commission (EC). ➤ Developed a legal framework to help govern the energy sector.
	Parliament of Ghana (Legislature)	➤ Studied, amended and approved recommendations by the PSRC.
	Government of Ghana (Cabinet)	<ul style="list-style-type: none"> ➤ Accepted the need for undertaking the reform and also initiated activities leading to the attainment of the conditionality of the World Bank. ➤ Desired a total reformation of the power sector to free it from government financing of the sector.
NGOs/Civil Society Group	Association of Ghana Industries (AGI), Civil Servants Association (CSA) and Trades Union Congress (TUC).	➤ Partook in and significantly contributed to the Task Force Committee formed by the PSRC in view of helping the design processes and coordination of other aspects of the Reformation process.
International Bodies	SYNTEX Consulting Engineers (Energy Consultant)	<ul style="list-style-type: none"> ➤ Engaged by the Government of Ghana to undertake the study that could help meet the conditionality of the World Bank. ➤ Made recommendations leading to the formation of the PSRC. ➤ Recommended thermal complementation for Ghana's power sector.

Source: Author's construct, 2016

2.4 Energy Policies in Ghana

Ghana's energy policy landscape reveals the country's readiness for renewable energy development, however, there are questions on commitment and implementation of policies. Prior to the introduction of the National Energy Policy in 2010, Ghana's energy sector activities were driven by the Strategic National Energy Plan (SNEP) (Energy Commission, 2006a; 2010b). The SNEP was subdivided into two main parts: the Energy Demand Sectors of the Economy (EDSE) and the Energy Supply Sectors of the Economy (ESSE). The latter is further divided into three sections: Electricity/ Power; Petroleum; and Woodfuel and Renewable. These strategic documents played crucial roles in shaping the energy development of the country.

The EDSE of the SNEP identifies five energy consumption sectors in Ghana, each with outlined strategic plans (Energy Commission, 2006a). Under the residential sector, the policy targeted 100 percent electricity coverage of the country by 2020. Rural electrification with complementary renewable strategies was targeted at 15 percent by 2015 and 30 percent by 2020. The commercial and service sector was to experience a reduction in energy consumption and woodfuel usage through the introduction of energy efficiency programmes and cleaner energy alternatives. The policy targeted 1 percent penetration of solar energy utilisation in hotels, restaurants and institutions by 2015 and 5 percent by 2020. Also targeted was 20 percent utilisation rate of LPG by 2015 under the commercial and service sector, with a projected usage rate of 30 percent by 2020. Ghana's agricultural and fisheries energy demand sector is earmarked to be satisfied through the increased usage of renewable energy including, solar energy and targeted at a penetration rate of 20 percent by 2020. In the transport sector, the plan seeks to reduce the dependence on imported fossil fuels and rather encourage fuel efficiency measures. The plan also seeks to promote cost effective, but affordable high quality supply systems in the industrial sector. Strategies for achieving this goal are silence on the adoption of renewable energies but encourage environmental cleanliness practices.

The ESSE (Electricity) of the SNEP provides policy options and direction for the promotion of adequate and reliable electricity to drive economic growth (Energy

Commission, 2006b). It identifies three generation options with similar composition of renewables, but different compositions of other generation sources:

- Expansion plan based primarily on natural gas and with renewable energy making a 10 percent contribution by installed capacity by 2020.
- Expansion plan based on natural gas, Bui hydropower project and 10 percent renewable energy contribution by installed capacity by 2020.
- Expansion plan based on natural gas, Bui Hydropower project, nuclear power and 10 percent renewable energy contribution by installed capacity by 2020.

These generation options share similar characteristics with slight variations. In option one ESSE seeks to:

1. Establish a 125 MW power barge, which will later be converted into a 187 MW combined cycle Gas turbine plant.
2. Expansion of the 330 MW Tema Gas Thermal Station to 660 MW by 2020.
3. Establishment of an additional 660 MW Gas thermal Station at Takoradi.
4. Promote embedded renewables generation (excluding the traditional large hydro plants such as Bui), starting with a share of about 5% by 2008 increasing to about 9% by 2015 and eventually up to 10% by 2020.

Contrary to option one, option two has a 330 MW of Gas thermal Station to be constructed at Takoradi together with a 200 MW Bui hydro plant to compensate for the reduction in option one. Option three has similar generation mix as option two except for the fact that the 330 Gas thermal Station is replaced with a 335 MW nuclear light water reactor. Renewable generation remains the same in all three generation options and is proposed to come mainly from landfills, wind, solar energy, agro-biofuels and mini-hydro.

The petroleum sector under the ESSE also has provisions for the promotion of renewable energy sources. It promotes renewable energy fuels (gasohol and biodiesel) and natural gas to achieve a sustainable supply mix and clean air quality within the sector (Energy Commission, 2006c). This is to be achieved through an increase production of:

- Alcohol for commercial blending of gasohol to complement gasoline use in vehicles;

- Plant oil such as jathropha oil for commercial blending of biodiesel to complement diesel use in vehicles;
- Liquid biofuels as fuel alternatives.

In the wood fuel and renewable sub-sector sector, the plan aims at mitigating challenges associated with wood fuel through the promotion of alternative fuel usage for domestic and commercial activities. On renewables, the plan targets a 10 percent penetration rate by 2020 in Ghana's energy mix through the exploration of technologies such as landfill gas to power; waste incineration; wind farms; medium to small scale hydropower plants; and solar technologies. To achieve this policy target, strategies such as development of regulatory framework that will attract investors and adoption of innovative funding mechanisms were outlined in the strategic document (Energy Commission, 2006d).

Currently, the energy sector activities of the country are shaped by the 2010 National Energy Policy, which seeks to develop an energy economy that would guarantee secure and reliable supply of high quality energy services for all sectors of the economy and also contributes to export earnings (Ministry of Energy, 2010a). It envisages to achieve this objective through the implementing of the following strategies:

- Ensuring energy services are readily available to meet demand at any point in time;
- Making energy services universally accessible through the development of an extensive supply infrastructure;
- Ensuring that energy is produced and supplied in a form that conforms to acceptable international practice with regards to their health and environmental impact;
- Ensuring that energy is used in the most efficient manner; and
- Ensuring energy is produced and supplied at competitive prices (affordable tariffs).

The 2010 National Energy Policy covers various sub-sectors, with each having its policy goals and strategies (Ministry of Energy, 2010a). Policy directions at the power sub-sector aim to provide quality and affordable universal electricity access to all Ghanaians by 2020 through increasing generation capacities. In respect of the petroleum sub-sector, the policy aims to achieve sustainable exploration, production and development of its oil and

gas as well as the sustainable management of revenues from the oil and gas extraction. On renewables, the policy seeks to increase the share of renewable energy in Ghana's energy mix (10% by 2020) through increasing use of renewable technologies and ensuring efficiency in its production and use (Ministry of Energy, 2010a; PAGE, 2015). It also seeks to improve production and efficient use of biomass in the short term and the promotion of fuel substitution in the medium and long terms.

The Energy Sector Strategy and Development Plan (ESSDP), a subsidiary instrument of the current National Energy Policy, outlines activities, programmes and initiatives towards achieving the objectives of the energy policy (Ministry of Energy, 2010b). Strategies directed towards developing new renewables include: grid-connected solar PV programme for public institutions and estate development by 2013; wind farm project at Kpone; Mini Hydro demonstration Project by 2013; Bio-fuels projects by 2010 and development of the RE law by 2010 (ibid).

The Renewable Energy Act (Act 832) was passed in 2011 to provide the necessary legislative support and framework needed to achieve the renewable policy target. Enshrined in the Act are the establishment of RE fund, Feed-in-Tariff (FiT), mini-grid and other initiatives necessary for the attraction of private investors to develop the sector. According to PAGE (2015), despite such initiatives to develop the renewable sector, issues of long delay in setting up the RE fund to finance RET developments and the Net-Metering system are hindering the development of RE in the country.

As revealed in the energy policy landscape of Ghana, policy directions and strategies aimed at developing the renewable energy sector are ubiquitous. Under the SNEP, strategic elements that seek to develop the renewable sector are covered for all sectors. The current Renewable Energy Act (Act 832), FiT and renewable energy funds are initiatives under the SNEP (Energy Commission 2006d; GoG, 2011). Despite the progress, however, the present share of renewables in the energy generation mix is not abysmal (Energy Commission, 2015; PAGE, 2015).

2.5 Institutional Environment of Ghana's Energy Sector

Several institutions play key roles in the development of Ghana's power sector. From the ministry responsible for the sector, Ministry of Energy and Petroleum (MoEP), through to the regulatory institutions like the EC and other national, international and non-governmental organisations, all of which support policies, strategies, programmes, regulations and projects that are directed at the effective running and development of the sector. Other institutions have played key roles that serve as checks and balances on other sector players to ensure transparency, efficiency, optimality and accountability in the sector. The Millennium Development Authority (MiDA) has attributed the recent power challenges in the power supply value chain in Ghana to poor distribution. Accordingly, the ECG, NEDCO and Enclave Power, which are the power distribution companies in Ghana are the weakest link within the power supply chain. At the backdrop of this, the Millennium Challenge Corporation (MCC) Compact II signed between the Government of Ghana and the United States of America's government proposed that the ECG be released on concession for about 25 years. MiDA views this move as the best remedy to attack the root causes of the challenges faced by the power sector. Details of the mandates of relevant stakeholders and their contributions to Ghana's power sector are summarised in Table 2.

Table 2: Mandates and Contributions of Key Energy Players in Ghana's Energy Sector

Actor	Institution	Mandate	Contribution
	Ministry of Energy and Petroleum (MoEP)	➤ Enactment of policies and facilitates implementation of energy strategies, programmes and projects within the energy sector.	➤ Development Ghana Energy Policy, 2010
Local Institutions	Energy Commission of Ghana (EC)	➤ Regulation, management, development and utilisation of energy resources in Ghana.	<ul style="list-style-type: none"> ➤ Granting of energy licenses and permits to both domestic and foreign investors for the development of the energy sector. ➤ Promotion of Efficiency Management System for utility providers, households and industries through its energy efficiency programmes. ➤ Development of the Renewable Energy Act to encourage investments in the RE sector in the country.
	Volta River Authority (VRA)	<ul style="list-style-type: none"> ➤ Prior to 2005, VRA mandate lies in power generation, transmission and distribution. ➤ In 2005, transmission mandate was given out to Ghana Grid Company (GRIDCo). ➤ Distribution also given out to the NEDCo (a subsidiary of VRA) ➤ Responsible for generation roles. 	<ul style="list-style-type: none"> ➤ Generator of electricity and also responsible for the management of state power stations such as Akosombo and Kpong Power Stations. ➤ Had membership in the 'PSRC' that was tasked to initiate and coordinate the reformation system that led into the current thermal complementation phase of electricity generation. ➤ In recent years, has introduced new renewable (VRA Solar of 2.5 MW) to Ghana's energy generation.
	Electricity Company of Ghana (ECG)	➤ Distribution and supply of electricity to industries, bulk consumers and domestic consumers within the southern sector of Ghana.	➤ Until 1987, the ECG was responsible for distribution and supply of power across the country.
	Public Utility Regulatory	➤ Mandated to regulate the energy and water sectors to ensure consumers	➤ Played supportive role in the development and implementation of the Feed-in-Tariff and

	Commission of Ghana (PURC)	and producers satisfaction through tariff setting.	Automatic adjustment formula schemes for billing.
	Ghana Grid Company Limited	➤ Grid infrastructure management to ensure effective transmission of electricity.	➤ Provision and extension of the grid infrastructure to cities, towns, villages and remote areas for electrification purposes.
	Ministry of Environment, Science, Technology and Innovation (MESTI)	➤ Integrates environmental issues, sustainable management of human settlements into energy developments.	➤ Environmental certifications to investors before energy licenses are issued for development of energy projects. It does this through its agency 'Environmental Protection Agency'
Non-governmental/Civil Society organisations	Trade Union Congress (TUC)	➤ It is the mouthpiece of all workers union in Ghana and deals with government and employment associations to promote the wellbeing of all employees.	➤ Shapes energy policies especially on tariff settings through advocacies - strikes, protest, and social agitation. Evident is the 1997 protest against tariff increment.
	Association of Ghana Industries (AGI)	➤ It is the mouthpiece of industries in Ghana (small, medium and large). It advocates policies for their growth and development.	
International Organisations	World Bank	➤ Supporting the scaling up of generation capacities; and improving efficiency and governance of energy sectors especially those owned by African states.	➤ Key financier of Ghana's energy sector. ➤ Initiated the major power reform leading to the debugging of some mandates of the VRA.
	MiDA	➤ Support the transformation of Ghana's power sector and stimulate private investment	➤ Addressing the constraints to the supply of adequate and reliable power

Source: Author's construct, 2016

3. APPROACHES TO THE PEA STUDY

3.1 Methodology

The approach used to undertake this PEA study is informed by Political Economy Analysis of Climate Change Policies (PEACH) Methodology by Schmitz (2012) and the PEA Framework by Barnett *et al.*, (2016). The PEACH methodology focuses on answering the central question: who drives/obstructs certain policies? According to Schmitz (2012), an application of the PEA in climate change issues should be able to bring out relevant sector players who by their actions and policy priorities promote or obstruct such initiatives. Accordingly, a PEA should be capable of setting out the key challenges of which the study intends to investigate such as ‘who drives/obstructs climate change policies in the rising powers’ (Schmitz, 2012:1). It examines the complexities (actors, institutions and motivations) and is based on identifying the various stakeholders involved, including their diverse priorities. This therefore demands the mapping of identified stakeholders in a power priority matrix according to their direct and indirect influence on policymaking and implementation, and analysing their competing narratives. Using narratives from in-depth interviews of sector players, the PEA analysis through the PEACH’ lens embodies four parts: mapping stakeholders according to priority; discussions on the proponents and opponents of policies; mapping the level of influence of stakeholders on such policies; and identification of coalitions for change (Schmitz, 2012).

On the other hand, the PEA Framework developed by Barnett *et al.*, (2016) to understand issues of poor performance of Africa’s power sector despite several years of donor supports encompasses a four stage process: Problem identification; Diagnosis; Prognosis; and Interventions (Table 3). The problem identification stage is in synchrony with Schmitz’s (2012) position of ‘setting out the key challenge’ from the onset. Unreliability of service provision and incapability of the power sector to meet both existing and potential demand due to its financial unsustainability emerged as the key challenge of the power sector in Africa, which was the key focus of Barnett *et al.*, (2016). The diagnosis phase seeks to unravel features within the political and economy landscape accounting for the persistence of the problem. In their study, issues such as poor

investment in the sector was as a result of the risky investment environment of the sector; monopoly in the power sector; logistical challenge; unsustainable policy environment and ad hoc political interferences; politics and corruption were diagnosed as the factors causing the abysmal performance of Africa's power sector. The Prognosis stage builds upon the diagnosed stage, as it brings out all potential forms of change, and the most likely pathways of change. The intervention stage solicits solutions to the challenge by identifying what can be done differently to improve the situation in the power sector. This stage entails the identification of factors capable of changing the status quo to promote desirable results to enhance the development of the sector.

Table 3: PEA Framework

1. Problem identification	E.g. poor performance in the power sector
2. Diagnosis	What features of the political economy generate and contribute to the persistence of the problem?
3. Prognosis	Given the diagnosis, what is the potential for change, and what are the mostly likely pathways of change?
4. Interventions	How can particular actors help to shift the pattern of incentives in a manner that promotes desirable change?

Source: Barnett *et al.*, (2016)

The methodology for this current study is therefore, a hybrid of the PEACH methodology (Schmitz, 2012) and Barnett *et al.*'s (2016) PEA framework – an adoption of elements from both approaches that are deemed pertinent. Thus, key elements including problem identification (already captured in the introduction section as low investment in renewable energy sector in Ghana); diagnosis (identification of binding constraints to renewable energy investments); prognosis (mapping of promising policies); mapping of stakeholders (See Appendix 2) to ascertain the varied narratives; and coalition for change (intervention stage) constitute the analytical framework for this study.

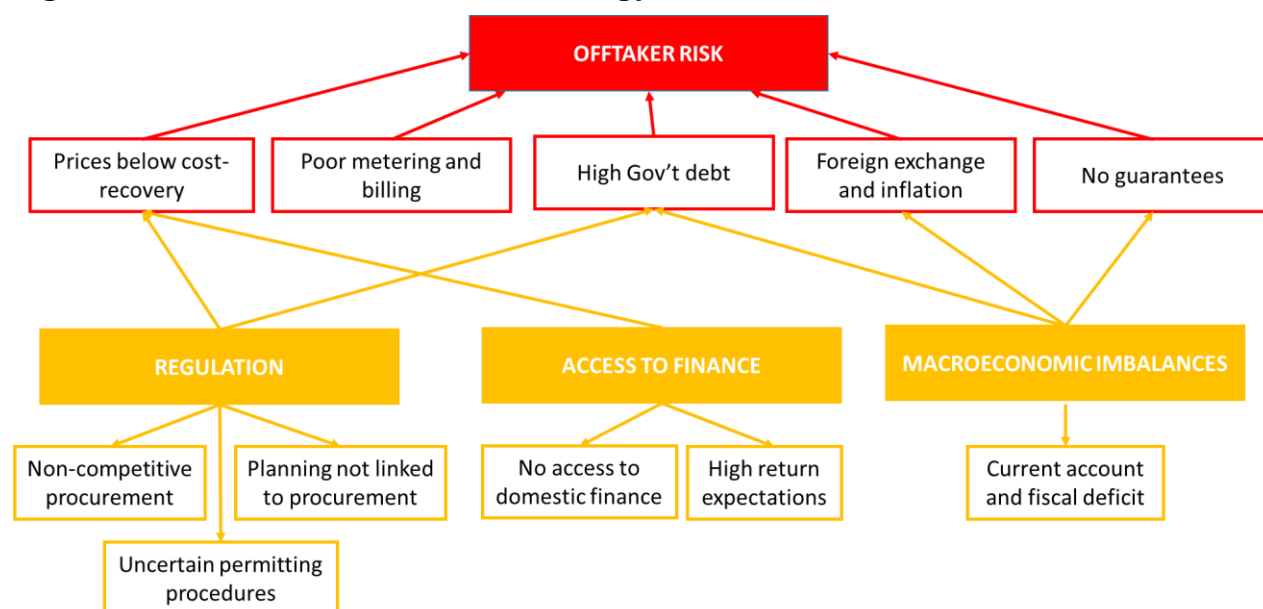
3.2 Identification of Binding Constraints

Identification of binding constraints to renewable energy investment is crucial for the present PEA. The Green Growth Diagnostic Study for Africa (GGDA), of which this report is a component, adopts qualitative and quantitative approaches to unearth factors

hindering investment in renewable energy in the midst of their proven economic and financial viabilities. Underpinned by the Growth Diagnostic methodology, a well-structured diagnostic framework for renewable energy investment was developed and applied to identify the binding constraints in Kenya and Ghana. The framework covers scientific diagnostic mechanism where generic constraints were further diagnosed for specific constraints. Issues of uncompetitive returns, unsustainable returns, inequitable costs and benefits, high business costs, lack of domestic institutions to supply long-term finance, lack of long term external capital, forex exchange risk and political risk were identified as factors responsible for the present low investment in renewables energies in Africa (Pueyo *et al.*, 2015).

Using two main methodological approaches, review of literature and in-depth interviews of experts, potential constraints to RE investments in Ghana were identified. Evidence emerging from the study points to the fact that clean technologies were considered to be unattractive. Investments in RE had low returns in comparison to alternatives, high financial costs and high return expectations. The current low development of Ghana's RE sector is predominantly hinged on the high risk nature of regulations at the power sector. High transaction cost of permitting procedures, low credit worthiness of the off-taker, low capabilities and industrial development and a highly volatile currency and inflation make investment in RE very risky and uncertain. Other revealed constraints include lack of access to domestic savings, high interest charges by banks, and short payback periods of credit facilities that dissuade potential investors from investing in the sector. Figure 1 presents an overview of the potential constraints facing RE investment in Ghana.

Figure 1: Constraints to renewable energy investment in Ghana



Source: Pueyo (2016)

In an attempt to understand the gravity of the constraints to investment in REs, in-depth interviews of experts (See Appendix 1) were conducted and stakeholders were asked to prioritise constraints.² These were further subjected to a diagnostic testing by the HRV framework to prove how binding the constraints are on RE investments (Pueyo, 2016). Per the HRV framework, for a constraint to be binding, it must have the following attributes: a high shadow price; high impact on renewable energy investment when they are released; agents would try to bypass them; and agents less intensive in the constraint would be more likely to survive and thrive (Hausmann et al., 2008). Faulty power sector regulation, off-taker risk, lack of access to appropriate finance and lack of political will were prioritised highly by experts as the binding constraints in Ghana (Pueyo, 2016). Upon applying the HRV framework, however, faulty power regulation, off-taker risk and lack of appropriate finance at the domestic market emerged as the most binding constraints to RE investment in Ghana.

² List of experts for the in-depth interviews on constraints facing RE investment is presented in Appendix 1.

3.3 Mapping of Recommended Potential Policies

Methodologically, the next step in this PEA study is the mapping of relevant policies that are potent enough to help unlock the above identified binding constraints. Potentials to overcome the binding constraints to RE investment in Ghana exist, but lack of enactment and implementation have saddled them. Table 4 contains the mapped existing policies having the potentials to unlock the binding constraints surrounding RE investment in Ghana and, answers as to why they are not adopted or implemented form the core of the discussion in the subsequent sub-sections of this report.

Table 4: Potential policies to address binding constraints to RE investment in Ghana

Constraint	Policy	Expected Outcome
Off-Taker Risk	Privatisation of the revenue arm of the power sector.	<ul style="list-style-type: none"> ➤ Achieving an efficient and effective revenue collection system. ➤ Encouraging private sector participation through the provision of a reliable repayment mechanism to power producers.
	Improved management of ECG including revenue collection (especially revenue from debtors – government and others)	<ul style="list-style-type: none"> ➤ Alternative to privatisation but entails adopting effective management practices, which improves overall performance of the off-taker.
	Promotion of efficient technical practices within the distribution arm of the power sector through privatisation.	<ul style="list-style-type: none"> ➤ Reduction in distribution losses, particularly non-technical losses.
	Establishment of a competitive off-taker market in the power sector.	<ul style="list-style-type: none"> ➤ Encouraging other mandated institutions such as mining companies, bulk power producers and VRA to sign off-taker agreements in order to promote competition.
Faulty power sector regulation	Establish a full-time high level IPP facilitator in the power sector.	<ul style="list-style-type: none"> ➤ Promotion of competitive solicitation and contracting process that is based on standardised terms, including payment risk mitigation. ➤ Encouraging transparent auctioning systems instead of a system based on unsolicited proposals with projects that may forever stay in the pipeline.
	Establishment of a reliable and transparent full-cost tariff pricing system	<ul style="list-style-type: none"> ➤ Ensuring that the automatic price adjustment formula takes into consideration several indicators such as the environmental cost in order to be cost reflective.
	Full Implementation of the RE-Act (Act 832) and its enshrined subsidiary instruments (Net-metering, mini-grid systems, and the RE fund and levies)	<ul style="list-style-type: none"> ➤ To guide and track progress of RE development in the power sector
Lack of access to appropriate finance	Establishment of RE financial instruments within domestic banks by Government with lower interest rates	<ul style="list-style-type: none"> ➤ Opportunity to offer lower interest charges on loans and to offer long term finance to investors

Source: Author's compilation from literature sources (Off-taker (USAID, 2014; IFC, 2014; World Bank, 2013); Regulation (World Bank, 2013); Finance (World Bank, 2013))

4. DISCUSSION OF BINDING CONSTRAINTS TO RE INVESTMENTS IN GHANA VIA PEA

Having identified policies with potentials to address the binding constraints to RE investment in Ghana, it is imperative to understand why such policies have been ineffectual in the past hitherto, through the adapted PEA methodology. Through in-depth interviews with key stakeholders, the various discourses accounting for the ineffectuality of the policies with potentials to unlock the different binding constraints to RE investment, are teased out. The proponents and opponents of these policies are identified via the different narratives. For each of the potential policies, an account of the gains that could emanate from their implementation are outlined with their proponents, prior to the discussion on why they have not been promoted.

4.1 Off-Taker Risk Constraint

The non-existence of a credible off-taker in Ghana's power sector remains a key disincentive to investment in energy especially, renewables. The inability of the present off-taker (ECG) to maintain a credible and resounding financial balance sheet as a result of low electricity prices and bottlenecks with revenue collection underscores the risk in the power sector as far as investment is concerned. This situation therefore dampens investors' confidence since it could be difficult for them to recoup their investments. Narratives from stakeholders underpinning why the credit unworthiness of the present off-taker dissuades investors from investing in Ghana's power sector are in tandem with findings by the African Energy Issue (2014).

'An important constraint is that the off-taker is not financially credible. They are unable to pay their bills' (Head, Renewable Energy Promotion, Energy Commission (EC)).

'When you generate power it's either ECG or NEDCo that will sell the power and they have proven not to be credible. When they buy power, they don't pay back, so it becomes a disincentive for investors' (Deputy Executive Director, African Center of Energy Policy (ACEP)).

‘We can’t call ECG a credible off-taker. So now, it is a major bottleneck ... who would buy the power I’m generating and can pay at the end of the month? Most of the people who have gotten PPA’s from ECG are asking for further guarantees because of their notorious track record of being unable to pay’ (Executive Director, KITE).

4.1.1 Privatisation of the revenue arm of the power sector

One of the key policy interventions or initiatives with the potentials to help unlock the off-taker risk in the power sector is the privatisation of the revenue arm of the power sector. The ability to create a competitive retail market in Ghana’s power sector, in which the current monopolistic role of the ECG becomes defunct is expected to be derived from the implementation of this policy instrument. The competitive retail market will seek to strengthen the revenue collection base of the off-taker, since it will involve the adoption of innovative and efficient monitoring and metering systems. According to Eberhard *et al.*, (2008), the introduction of these innovative mechanisms by the private entity will improve the system than under the management of a public body. Thus, the enactment of such a policy instrument could lead to high level of performances and efficiency in the revenue mobilisation within the organisation. According to some of the stakeholders interviewed;

‘The way things are being looked at is that we want to have a retail market where interested companies will be given a concession once they meet the requirement. So you take electricity and sell in your concession area’ (Head, Renewable Energy Promotion, Energy Commission).

‘In Ghana, we used to be vertically integrated and then we went through reform, broke it up into generation, transmission and distribution. Currently, distribution does two things. We do distribution and we do supply. Typically, you may want to separate the two functions and then for example open the supply phase up for competition’ (General Manager of Regulation, Electricity Company of Ghana).

‘So looking first at privatising the revenue arm of the power sector, ECG in a way says that in terms of distributing bills, it was the private sector. So they were involving the private sector in a way in terms of distributing bills but I think when

payment had to be made it had to be made directly to the ECG. So it was something [ECG] like working with them [private sector players] at least to distribute bills. So in a way they are doing it... [Now] what the COMPACT seeks to do is just to go beyond' (Millennium Development Authority (MiDA) Team).

'The idea is that bringing in privatisation will lead to competition ... But if we are bringing in a privatisation which means that it is going to be competitive, then you are bringing in about three or two companies. Then for me to make money, I need to get more customers onto my system. How do I do that? I do that by improving my system of energy production, distribution and effective private system to outwit my competitor'. (Coordinator, KASA-Ghana).

A boost in investment is another benefit expected to be realised if the policy instrument is implemented because of the infusion of the state-of-the-art innovative mechanisms in business activities by the private entity. The ability to influence capital inflow for investment is expected to be undertaken efficiently by a private entity than a public entity whose source of funds is dependent on government. This has the potential of eliminating all forms of subventions from government in the sector, which in most cases are the reasons for government interference in the power sector (World Bank, 2004). Anwader and Ozuna (2002) note that government interference is the core reason for inefficiency in the power sectors in developing countries. Hence, the involvement of the private sector will attract more investment and further relieves government from budget constraints (ibid). Views from the in-depth interviews supporting the outlined gains are below:

'No matter who is in power, so long as they have the opportunity to influence, the temptation is there. So with the private sector governance, it reduces interference in terms of procurements and other things... So we will be making investments on how to modernise, how to make it even easier to capture customers, how to make it easier to detect faults and how to make it easier to fix faults so that we can improve on the service delivery' (MiDA Team).

'There are other competing needs. Where we can get the private sector to do things, let them do it so that we can concentrate on other important things' (MiDA Team).

‘Government is saying that, oh, we don’t want to pour money down the drain. This is what we want to do, which is fair from the government’s point of view’ (Chief Executive Officer, Solar Light Ghana).

4.1.1.1 Fear of High Tariff

Electricity tariffs play critical role in political discourse in most jurisdictions of Africa and, Ghana is not an exception. The level of electricity prices influence consumers’ perception about government policies and the energy sector is used as a platform by political leaders to canvass for political support (Oda and Tsujita, 2010). Politicians adopt cross-subsidies and life-line tariff structures to make electricity affordable and eliminate social protest (Fattouh and El-Katiri, 2015). Until recently, electricity tariffs were not cost reflective in Ghana due to political interference. Hence, any initiative at making tariff cost reflective mostly encounters series of social protest and political interventions in the operations of the energy sector.³

‘I think the country is trying at this point to ensure that we pass on the full cost. The tariff that we are paying now, I think that even if we guaranteed a private sector that tariff, they would want to generate electricity’ (Deputy Executive Director, African Center of Energy Policy).

One of the main reasons going against the privatisation of the revenue arm of ECG, however, is the fear of increase in tariffs. According to Hall et al., (2005) initiatives towards privatisation of essential national assets such as the energy sector are never without oppositions, for the fear of price increment. Privatisation in most cases widens the affordability gap of the population who cannot afford services from assets that used to be provided by the public institutions (ibid). Hall et al., (2005) and Nellis (2003) dwelling on the negative implication associated with privatisation, note that it mostly distorts socioeconomic conditions in an economy through deepening poverty and increases the cost of living. Such fears by citizenry have negative effects on governance due to the

³ <http://www.africanews.com/2016/01/20/ghana-labour-groups-protest-increase-in-utility-and-taxes/>

‘patron-client relationship’ practices in developing countries in which there is a trade market for cost of electricity and votes (Barnett et al., 2016). Indeed, narratives from the in-depth interviews attest to the fact that the fear of increase in tariff and the implications upon privatisation serve as important obstructing elements of the non-implementation of the policy instrument.

‘I think the stakeholders that are kicking against this are basically the final consumers who in effect have witnessed tremendous increase in electricity tariffs. The fact is you are bringing a third party, which we see will be more efficient and more effective. The fact too, however, is that we also have information about the cost of electricity being higher than how much we are paying and it means that a third party who is coming in with a business motive or private motive will need to break even or make profit for that matter through high cost of electricity tariffs. So, consumers would then try to fight against those things’ (Coordinator, KASA-Ghana).

‘...Well, I think when you talk about privatisation, people think that prices are going to go high. With the telecoms too that was the fear, but when the privatisation happened, prices never went up as initially thought...’ (Head, Renewable Energy Promotion, Energy Commission).

However, other stakeholders object to connoting privatisation with increment in tariffs.

‘The other argument is also that tariffs will go up with privatisation. This doesn’t happen anywhere. Even in the advanced countries, tariffs are not fixed by the operator. That is why we have PURC, they are independent and take certain thing into consideration before bringing the tariff. So the argument that certain prices will go up because a concessionaire is coming in is not so’ (MiDA Team).

4.1.1.2 Ideological perspectives of ECG as a national identity

The belief that ECG is a national asset and should stay as such also emerged strongly as a reason against privatisation. People with this perception opine that government has no moral right to either sell or give out ECG’s function to a foreign private entity since that will be tantamount to weakening the country’s sovereignty. Once such a national asset is

given out to a private sector player, it will no longer be used to serve the interest of the public, which in turn can affect the economic wellbeing of the vulnerable (Buresch, 2003). Views from the in-depth interviews and literature sources manifesting the ideological arguments against privatisation are below.

‘This agitation issue is about people who encourage socialism, they think this is a state asset but I don’t have any problem when the state asset is working. Some people think that it is better to have monopoly in the public sector rather than the private sector because they still see it as a public asset. That is why people are agitating. And then they come and take control, they would send the money outside. They still think if government paid all that it owns ECG then, ECG can be on its own. The government doesn’t have the money to pay ECG. So then the status quo just continues’ (MiDA Team).

‘Looking at what is happening and the attempt by government through MiDA to give ECG to a company to manage as a concession for 25 years, it’s on a large scale and taking it from the hands of Ghanaians to a foreign company. So the issue about privatisation is not new for me, but it is the magnitude and the sort of independence given to the third party to do those collections is what is new.’ (Coordinator, KASA-Ghana).

‘They are also saying that the concessions or the kind of room we want to give to the private entity if we gave the same room to the Ghanaians, they can deliver. I think that is why people are also listening to them’ (Deputy Executive Director, ACEP).

‘Ownership should be Ghanaian. It should be listed on the Ghana Stock Exchange so that every Ghanaian will be a shareholder. In that way, it will still be for Ghanaians but it will mean government cannot take out anything from the ECG.’⁴ (Chief Policy Analyst, GIPPO).

⁴ <http://www.ghanaweb.com/GhanaHomePage/business/Tarzan-disagrees-with-ECG-workers-over-privatisation-465173> (Accessed; 15/8/2016).

Others, however, argue that the privatisation in the case of the MiDA Compact II will not mean the entire ECG will be given out to a private entity.

‘Ownership of the company (ECG) still stays with government of Ghana. The negotiations are going on between an operator for ownership of the wires and assets within the concession period. By doing so, if you are operating an asset, we (ECG) still have to have control over those assets’ (General Manager, Electricity Company of Ghana).

‘So ECG will still be there but it will be a whole new company who owns the assets within the concession period. They grant them the access and enter into an agreement on how they are supposed to operate’ (MiDA Team).

4.1.1.3 Foreign/Externally driven agenda

External influence in the policy agenda has emerged strongly in privatisation processes in developing countries (Haque, 2000). According to Jiyad (1995), the ineffectiveness of various sectors including energy due to state interference and poor financial management has made donor organisations such as the International Monetary Fund (IMF) and the World Bank to demand performance indicators that will address public sector inefficiencies, reduction of state intervention, and privatisation of public enterprises as conditions for financial support. The ineffectiveness of these sectors therefore creates an avenue for such donors to influence the decision making process and further impose recommendations from other jurisdictions that sometimes fail to reflect the core needs of that country (Adam et al., 1992).

Opponents of the current drive to privatise the revenue arm of ECG through the MiDA Compact II opine that the process is heavily influenced by external players and not coming from within the country. Accordingly, the Government of Ghana failed to incorporate processes in the MiDA Compact II to reflect the country’s needs before beginning the agreement. Against this backdrop, opponents of the privatisation of the revenue arm of ECG through the MiDA Compact II view the entire process as highly influenced by the donors, leading into agreements that do not only fail to address the core problem about the off-taker market, but rather have adverse effects on workers of the ECG and final

consumers. The narratives below add weight to the critical role of the external stakeholders being drivers of the privatisation vis-à-vis other national stakeholders vehemently opposing it.

‘It’s an external pressure and you see how we respond to external pressure ... When something is coming from outside we are going to push back easily, good or not. So what would have been nice is that we ourselves recognise that the way we run these parastatals over the years has been wrong’ (Chief Executive Officer, Solar Light Ghana).

‘I think that government should have even commissioned its own research into this and not to sit down for International Finance Corporation (IFC) to come and do that for us’ (Deputy Executive Director, ACEP).

‘So we are in a geopolitical environment, you are looking to gain access to markets and influence over policy...If they (external powers) are going to gain favour in Ghana and be able to push their policies in Ghana...it’s fine’ (Chief Executive Officer, Solar Light Ghana).

‘Some people ask this question - how will Americans put in this money if they have no interest? They think it’s a way of the Americans taking hold of our power sector’ (MiDA Team).

‘So the external pressure from my perspective is because there might be some under dealings somewhere which I might not be able to tell. Because I don’t see the rationale behind it, if I am going to use your own money to run your system. Or, because of government’s inability to trust the ECG’s system so we think the third party can do an efficient and effective job’ (Coordinator, KASA-Ghana).

‘This policy is not the best option to bring reforms to make ECG more efficient and profitable. We have already articulated our views and suggestion in our position paper to MiDA and the Ministry of Power. Unfortunately, the government of Ghana with tacit pressure from MCC of the United States of America, is still pushing this

agenda despite all the negative implications for our country and its citizens.’⁵ (Public Utility Workers Union, Electricity Company of Ghana).

‘There are capable Ghanaians who can manage this company. We don’t want foreigners. Our problem now is with the invisible hands; there is a lot of interference from external sources in our operations as a company, ... We don’t understand why we started a two-year strategic business unit in the Ashanti Region on a pilot basis, to be replicated in other regions based on its success, and just six months into the initiative, the government wants to hand over the company to foreign investors without waiting for a proper assessment of the initiative’ (National Secretary of the Senior Staff Union of the ECG).⁶

4.1.1.4 Job uncertainty

Concerns about job security and the possible creation of jobs for only the few elites are arguments against the policy instrument of privatising the revenue arm of ECG. While assurance has been given in the MiDA Compact II deal that no ECG worker will be laid off in the first 5⁷ years of the concession, opponents of the initiative including, ECG workers are not entirely convinced about the provision especially, they are unsure of their retentions after the first 5 years. This uncertainty has triggered series of strike actions (see Figure 2) by ECG workers against Government.⁸ The following views from stakeholders attest to the fear of job losses if the policy is implemented:

‘Everywhere you want to introduce change there is opposition. When we meet ECG and we talk, we say we understand because nobody wants it. You know what the situation is but then we are not sure about what happens tomorrow’ (MiDA Team).

⁵ <http://www.ghanaweb.com/GhanaHomePage/business/PUWU-to-stage-3-day-demo-over-ECG-privatisation-464641> (Accessed; 15/8/2016).

⁶ <http://www.graphic.com.gh/news/general-news/ecg-workers-in-accra-oda-protest-against-privatisation-of-company.html> (Accessed; 15/8/2016).

⁷ ‘For the first five years we are telling whoever comes as a concessionaire that you cannot reduce the level of employment within ECG. It is a way of guaranteeing people’s jobs at least for the next five years’ (Chief Executive Officer, Millennium Development Authority).

⁸ <http://www.africanews.com/2016/01/20/ghana-labour-groups-protest-increase-in-utility-and-taxes/> (Accessed: 15/8/2016).

‘They [ECG workers] are making an argument that this whole restructuring is being piloted in Kumasi, so why the rush to sell or privatise the whole of ECG. Those are legitimate concerns because they are afraid of job securities and are not sure what the private entity would do’ (Deputy Executive Director, ACEP).

‘I think it’s really job security, first of all. Maybe pride a little bit, but job security and mistrust of whoever is coming in, that, they are simply coming to make money on top of their labour’ (Chief Executive Officer, Solar Light Ghana).

Buttressing this resistance from the ECG workers’ union are evidences from similar privatisation agenda implemented elsewhere in the world. Birdsall and Nellis (2003) observed that privatisation unfairly disenfranchise workers as in most cases they throw people out of good jobs, making them unemployed, poorer and further leaving them in states of emotional instability due to their inability to easily overcome the shocks emanating from the job losses. Workers who are fortunate to return to the labour market usually have to work for lengthy hours to earn decent salaries or suffer from marginal reductions in benefits (Birdsall and Nellis, 2003).

Figure 2: ECG's workers demonstrate against privatisation⁹



4.1.1.5 Lack of broader consultation

The lack of broader consultation is another fundamental reason that fuels agitation, opposition and disbelief in privatisation and the MiDA Compact II agreement for the privatisation of the revenue arm of ECG is no exception. The consultation process as has been argued, appears to have taken place without the involvement of all key stakeholders in the energy sector or, decisions have been taken by authorities without all stakeholders reaching a common consensus.

‘...why really government chose concession nobody knows... that hasn’t been made public to us either. It was solely based on the conclusions of IFC or government has further details that we don’t know. If you ask government you are told they are working with ECG management. Who are the ECG management? The ECG management is government, so if government appoints the key persons in ECG and they are part of the negotiation to privatise ECG, then it is government negotiating everything. So the workers themselves at ECG were not deeply involved in the decision. That is where government erred in not trying to get everybody involved’ (Deputy Executive Director, ACEP).

⁹ <http://www.myjoyonline.com/news/2016/June-23rd/ecg-workers-demonstrate-against-planned-privatisation.php> (Accessed: 15/8/2016).

The lack of broader consultation has therefore led to information asymmetry surrounding the process of privatising the revenue arm of ECG through the MiDA Compact II. This has seriously overshadowed the intents of this policy instrument as it has opened room for diverse interpretations by different stakeholders.

‘I’m sure the news is out there, half information and people adding their own stuff... Maybe, people are not well informed. They don’t know what is happening. For me, I always use the example of the telecom. I feel that is the model that we have to use.’ (Head, Renewable Energy Promotion, Energy Commission).

‘As we speak civil societies and industry watchers don’t know the details about this whole process...we don’t know what is being negotiated and what the terms of reference would be. It has been a secret document in cabinet. It has not been released and citizens have to make inputs into the terms of reference even if we have to give it out as a concession. That process has to be transparent and it hasn’t been. It is difficult for anybody to jump to the side of government or to jump to the side of workers when the full details are not known’ (Deputy Executive Director, ACEP).

‘...the kind of comment that they have made so far and the kind of threat elements, it means we are getting into a confrontational stage which is not the best for all of us. You said you won’t sell, now you are selling, the terms and conditions under which you are doling out this particular transaction, Ghanaians need to know and this is what Public Utilities Workers Union (PUWU) is saying government should stay away from ECG or explain to us.’¹⁰ (General Secretary, Industrial and Commercial Workers Union)

According to Barnett *et al.*, (2016) dissatisfaction of this kind makes citizenry lose trust in government policy and, that has a knock-on effect on their political fortunes.

¹⁰ <http://www.ghanaweb.com/GhanaHomePage/business/ICU-backs-protest-against-ECG-privatisation-465398> (Accessed; 15/8/2016).

4.1.2 Improved management of ECG

Another intervention that could have helped unlock the low investment in renewable energy in Ghana is the improved management of ECG including, efficient revenue collection from debtors – government and others. Proponents of this intervention deem it more promising than privatisation. Authors (Hall *et al.*, 2005; Barnett *et al.*, 2016) agree that issues related to privatisation of the energy sector in Africa are attributed to avoidable inefficiencies that arise from governments' interferences. The implementation of this improved management intervention is envisaged to enhance efficiency in the power sector. Williamson (1985) argues that if government replicates the strategies employed by the private sector and organises the energy sector in a similar fashion, with more stringent controls, it will yield the same efficiency results and attract more investment than what privatisation may achieve. An effective implementation of this intervention could help establish the right structures to run the off-taking market. Structures such as effective management system, monitoring and detecting systems, controls systems and elimination of government interferences are expected to be realised with the proper implementation of this policy intervention. Narratives from stakeholders in support of this policy intervention are captured below

'Improved management, or let's say, management autonomy. To me those are key and privatisation helps us achieve that, but the solution is not the privatisation. It is actually the management and efficiency within the organisation that privatisation has enabled. Now, why can't Ghanaians be disciplined enough to do those things themselves? That has been the argument of the workers, which I agree with completely' (Chief Executive Officer, Solar Light Ghana).

'Privatisation doesn't always mean bringing in external people to help. Even well doing companies go on privatisation even when somebody has put in money and the company is working. Example is Tullow has the capacity to source any funding, but looking at the financial status, performance and whatever reason decided to sell shares. They listed on the Ghana stock exchange to raise more money to do its operations. So in that sense, the control and decision making process of the company is being done by the shareholders. That is the sort of privatisation KASA

will back and the sort of privatisation we will recommend. There should be technological innovations to be more effective and we can also do the listing of ECG on the stock for Ghanaians to buy into it and take decisions.’ (Coordinator, KASA-Ghana).

‘We are actually for the restructuring of the system whether it is privatisation or trying to put in place the right mechanism to make sure that ECG works. We will be for it because we know what the challenges and whether you want to make ECG more autonomous to take independent decisions or not...Yes, I think the conclusion we (NGOs) have come to is that we want an efficient ECG’ (Deputy Executive Director, ACEP).

‘So again, these (privatisation and improve management) are all ingredients and I’m sure you are aware of that, but not one of them is the solution. It’s the combination of them, the solution that will solve it. But let’s stay on the first one, privatisation? Yes, it will reduce some risk, but I think a deeper problem there is really the balance sheet of the off-taker. Will the privatisation improve the balance sheet? Probably and possibly. But to me, the underlying cause is the balance sheet and the freedom of management to preserve that balance sheet’ (Chief Executive Officer, Solar Light Ghana).

4.1.2.1 Powerlessness of government to resist external pressure associated with financial assistance

While improved management of ECG will help enhance RE energy investment in the country, one of the key factors militating against its implementation is the weakness of the Government to resist external pressures associated with financial assistance. In most developing countries with Ghana not being exception, the constraints on resources often lead various governments to align with donor’s conditions in order to secure their financial assistance. Pressures such as intense power crisis and inability to raise capital from the domestic market render such government powerless, hence, any financial support from external source will be embraced irrespective of the conditions and consequences. Mehrotra and Delamonica (2005) observe that in most privatisation initiatives in developing countries, donor partners and international organisations strongly push

governments to accept the deals, with a lot of them being done behind the scene without proper consultation. Rather than improving the management of ECG to bring about efficiency, proponents argue that this was sidestepped in favour of privatisation because Ghana government could not resist the financial support from USA through the Millennium Challenge Corporation Compact II.

‘When something is coming from outside Ghana we are going to push back easily, good or not. So, what would have been nice is for us to recognise that the way we run these parastatals over the years has been wrong. So we need either a government that is mature enough to step out and say no’ (Chief Executive Officer, Solar Light Ghana)

‘Somebody is sponsoring us, we did not prepare ourselves sufficiently, understand ourselves. What do we want? ... of course if they say, this is how you have to write your renewable energy law, this is what you should put into it, this is what you should have; we have net metering so you too put it there; we have this so you too have it. Yes sir, ok, when is the money coming? That’s all we will do. So again, from those guys point of view they’ve met their interest, they’ve done what they needed to do, and they’ve satisfied their stakeholders. Have we satisfied our stakeholders?’ (Chief Executive Officer, Solar Light Ghana).

‘But the issue is that it’s something the government of Ghana has committed itself to in an international treaty. The MCC Compact II is an international treaty governed by international law so it supersedes even the local laws. It also supersedes the Americans own law. It’s not one way, it supersedes our and the American law because it is an international treaty. This is not being pushed because it is an international treaty’ (MiDA).

4.1.2.2 Lack of support to create the enabling environment for the policy implementation by government

The inability of Ghana’s power sector off-taker to function effectively is attributable to long standing interferences in the sector by various governments. Despite this known fact, one of the key discourses that work against the improved management of ECG is government

lack of support for the creation of an enabling environment for its implementation. Proponents of the improved management of ECG regard the government as the main obstructor of the intervention since it is the architect of the present financial troubles of the off-taker.

‘I will say that the reason why some people are kicking against it (privatisation) is because of government. Because they feel that government is the cause of the problem so don’t blame it on ECG. Government owes ECG so much and they feel if government can put in place measures to curtail this, then ECG can operate efficiently’ (Head, Renewable Energy Promotion, Energy Commission).

‘But we do know that what has crippled the ECG is not that we don’t have people with brains to deliver but it has been the interference of government to just cripple them and the solution is to either make them independent or to give it to the private entity to handle, which also brings the independence that is required. The bottom line is that ECG has to be restructured. It has to go through a different model of management to make it more efficient, for which they can guarantee off-taking of renewable technology’ (Deputy Executive Director, ACEP).

‘They [PUWU] don’t want to accept the blame that ECG has failed because the people did not manage the system well. They [PUWU] think ECG has failed because government has not given them freedom to operate. They are also saying that the concessions or the kind of room we want to give to the private entity if we gave the same room to the Ghanaians, they can deliver. I think that is why people are also listening to them’ (Deputy Executive Director, ACEP).

4.1.3 Establishment of a competitive off-taker market in the power sector

In certain instances, healthy competition in any market could help in the delivery of quality products and services hence, there is the need to consider an establishment of a competitive off-taker market in the power sector to help boost investment in RE sources in Ghana. According to Chicco and Mancarella (2006), competitive market paves the way for the introduction of various energy generation technologies in the power sector including, renewable energy by the market players in a bid to meet customers’

satisfaction. The creation of a competitive market enhances the socio-economic conditions in an economy as it offers lower prices, but of high quality services than what a monopolistic market player would set (Kovacic and Shapiro, 2000). Notwithstanding the critical role of this policy initiative in unlocking the off-taker risk binding constraint to renewable energy investment, its implementation has been obstructed by several factors with attendant proponents.

4.1.3.1 Inadequate incentives and resources for its establishment

The creation of a competitive off-taker market in Ghana's power sector arguably could be beneficial to both consumers and producers in the terms of price and efficiency. According to Joskow (2006), every competitive market is dependent on factors such as initial market conditions, existing policy, regulatory framework and planned desirable outcomes that are to be achieved in the short to long term. Thus, the absence of any of these indicators will affect the benefits creation in such a market. Such is the case in the power sector in Ghana, making it difficult to establish a competitive off-taker market. The lack of adequate investment capital coupled with high interest charges on credit facilities from the domestic market make it difficult to operate a competitive off-taker market. The narratives below ascribe the reasons for the lack of incentives and resources to create a competitive off-taker market in Ghana.

'Yes, if that is established. If you have an off-taker market and somebody is ready to take the renewables, the question is why are they ready to take it? Unless there is some binding obligation, otherwise I can guarantee you that whatever the renewable supplier is going to give, in most cases it tends to be more expensive than what the conventional people are going to supply. Unless you have a cheaper renewable. You take a look at the feed in tariff as approved by the PURC and see whether they can compete with the conventional system. It is only the biogas and others that appear to be a bit competitive. So if the off-taker is given a free will to choose where he takes his supply from and there is no compulsion, ideally they won't go in for renewables because then, unless they will be able to sell it on and get their money' (Chief Executive Officer, KITE).

4.1.3.2 Lack of political will to drive the process

Political will shapes and guides how policies are pursued and implemented for economic growth especially, in developing countries. The determination of government and politicians to pursue certain agenda influences the creation of enabling environment to facilitate implementation of that agenda (Narayan *et al.*, 2000). Carmel (2009) identifies factors that influence political will of government to implement policies that promote development to include promotion of transparency, responsiveness and accountability. Proponents of the establishment of a competitive off-taker market in the power sector in Ghana argue that one of the nemesis to its non-implementation is the lack of political will.

‘I think it has been discussed but we don’t see the will to do that. People are not willing to leave that hold of power where you can influence the granting of licenses from the Energy commission or any other because obviously if you don’t have ‘connections’ it is difficult to get a license in Ghana if you don’t have a push backing from the political side, there can be noise about it but you are not going to get a license’ (Deputy Executive Director, ACEP).

4.1.3.3 Technical challenges

The inability to establish a competitive off-taker market also has to do with technical challenges. This further boils down to the low state of technological knowhow in most African countries. According to Cowan and Jonard (2004), in diffusion of knowledge it creates second experts who are able to replicate technologies and in some instances able to advance on them. This has a great impact on economic growth due to its potential to cut down future cost associated with the diffusion of knowledge and also profiting the country through replications. Financial constraints are likely to hinder the affordability of these technologies. The creation of the competitive off-taker market in Ghana is noted to suffer from technological challenges either due to lack of affordability of such technologies or the inability to create second expertise of such technologies.

‘Part of it is technical. Then you have to bill appropriately. Now, you can have a choice of billing service. Will it really solve the problem? I don’t know. Let’s say there is ECG and GCE and I feel I’m paying too much for ECG and GCE says, oh,

our service charge is 4 cedis instead of 6 cedis and I switch, am I really going to gain much. The other side is to say that this part of town is under ECG and the other part of town is under GCE, but then there is no mobility, there's no real competition. You've just created 2 monopolies because they are exclusive. Would you have gained the price competitiveness?'(Chief Executive Officer, Solar Light Ghana).

'It depends on how the infrastructure was built. If for instance Asogli wants to supply Accra Central, does Asogli need to develop its own infrastructure? Let's say I want to be an off-taker then I need to build my own system because ECG and Asogli also use that system. So when the energy goes into it, I don't know how it is going to be differentiated. Unless at a point in time, we have a system where for instance Asogli, produces, sell about 100 kW to a local person in Accra central at 15 cents per kW, the local person supplies it at 18 cents per kW and pays Asogli their share. So when there is any leakage in the system, a person in the local environment will have the resources to check where the leakages are' (Coordinator, KASA-Ghana).

4.1.4 Establishment of guarantee systems for power producers

Yergin (2006) observes that a guarantee system provides security in that it cushions investors' investments against shocks. Security systems for energy production such as the establishment of a guarantee system need to have features that encourage diversification of supply from various technologies, create a buffer system in the power sector to serve as resilience against shocks, and facilitates recovery against shocks (Yergin, 2006). Hence, a guarantee system with such features ensures successes at the energy sector as it boosts confidence of investors even in a risky environment due to the surety of making gains from the investment made (Iwayemi, 2008). Factors obstructing the smooth implementation of this policy intervention are teased out from the narratives embodying the in-depth interviews' responses.

4.1.4.1 Emphasis geared towards addressing Risks than the establishment of guarantee systems

Notwithstanding the prospects this policy intervention could unleash to help in overcoming the challenges crippling investment in renewable energy sources in Ghana, its opponents argue that it is sub-optimal for addressing the off-taker risk problem. The existing off-taker challenge calls for a credible off-taker that will be able to provide measures to guarantee investment in the sector. The ability to reform ECG to have a credible financial status, free from governmental interferences and being able to carry out its own investment efficiently, will be more beneficial than the implementation of this policy intervention, its opponents argue. Moreover, they opine that if the macroeconomic indicators of the country are put in good shape, the risks on investments will be absorbed by default and, a guarantee system will not be needed, as the excerpted views below manifest.

‘We believe that if ECG is reformed and they become financially credible then this issue of wanting government to guarantee will be a thing of the past’ (Head, Renewable Energy Promotion, Energy Commission).

‘I think for the guarantee system, if we have a credible off-taker, the off-taker should be able to guarantee the purchase of power. As it is now, we will have to restructure ECG and NEDCO to make sure they can guarantee else government will have to continue to guarantee’ (Deputy Executive Director, ACEP).

‘I think the economy itself is affecting everything. Because if ECG were doing well, this issue of wanting government guarantee will not be talked about’ (Head, Renewable Energy Promotion, Energy Commission).

‘All investors are asking for all sorts of things and you need to now go through, negotiate it out, and use the laws we have to provide some assurances. ... You have to go running after banks. The bank of Ghana says no, I can’t guarantee that for you because it is an open market and the Commercial Banks also tell you they cannot hedge for you. So these are the issues. For us, we see all these going through the macro economic variables. Taxes have been a big issue’ (General Manager, Electricity Company of Ghana)

‘If Bank of Ghana says I don’t have answer to forex, me as a power distributor, what do I do? The investor needs it, Bank of Ghana can’t provide so I sit. Meanwhile the customers need it but I can’t go and say I am guaranteeing for it. So it’s a tall order. It took us over three months working on forex. Eventually the solution had to be to go to the market to source our own...’ (General Manager, Electricity Company of Ghana).

‘A bigger risk is the macro economy. I will put that before I will put in the guarantee system because what would the guarantee be? It’s most likely government eventually, or the distributor (off-taker) saying that, ok, I’ll make sure you get paid... you are in such an environment where your inflation is paralysing, your currency is depreciating, the economy is bad, people’s purchasing power is low... all these things are happening and you give me a guarantee’ (Chief Executive Officer, Solar Light Ghana).

4.2 Faulty Power Sector Regulation Constraint

Effective regulation of the power sector with incentivised strategies tailored towards renewable energy development are paramount for shoring up investment in renewable energy sources. All over the world, various countries are formulating and implementing such policies on renewable energy, to boost energy security and climate change mitigation drive. Although Ghana’s power sector regulatory landscape aims at diversifying energy portfolios in order to enhance green economy, it is still fraught with challenges that undermine renewable energy investors’ confidence.

‘...we have regulatory bodies that are not encouraging the industry. Therefore if I put myself in the shoes of the investor, I am not going to invest in this mess. I am not surprised that people are not willing to put their money in that sector under the renewable energy law’ (Executive Director, Solar Light Company Limited).

‘Let the people understand the incentives, put the structures in place and they will get it. How many people know there is a renewable law in this country? People don’t know and even people within the sector. They don’t know that we have a renewable law that allows them to generate their own power and sell to the grid.

When you have done so, how do you sell? You don't have the metering system to do that' (Deputy Executive Director, ACEP).

Nonetheless, policy interventions such as establishing a full-time level facilitator in the power sector; establishing a reliable and transparent full-cost tariff pricing system; and full implementation of the RE Act (Act 832) and its enshrined subsidiary instruments could have addressed the faulty regulatory constraint in Ghana, if implemented. The obstructers of their non-implementation are discoursed below.

4.2.1 Establish a full-time high level IPP facilitator in the Power Sector

According to Eberhard et al., (2008) standard reform, which entails unbundling, privatisation, wholesale and retail competition has not succeeded in Sub-Saharan Africa. As a result the 'hybrid' power markets have emerged, where state-owned utilities and Independent Power Producers (IPPs) coexist. IPPs are required due to Government's inability to raise capital, but there is a need for appropriate enabling environments to attract IPPs. One-shop facilities to simplify permitting procedures for IPPs can contribute to create this enabling environment.

'...when it is done, it will facilitate processing applications in the country because, we realised that as the investor moves from office to office, he/she is not conversant with our set-up and at times, will even not be well received or will have to be nice [dishing out gifts in different forms] with somebody before being attended to. With this IPP facilitator, however, the investor would not have to move from one office to the other. You have an officer who will go round to process whatever is required. I think it is a very good idea'. (Head, Renewable Energy Promotion, Energy Commission).

4.2.1.1 Extra cost Dimension

One of the reasons stakeholders speak against this policy intervention, hence, its non-implementation is that it is unnecessary and will only add extra cost, since current practices in the power sector already take account of that. Opponent to this policy intervention argue that the Energy Commission of Ghana is already playing this function,

hence, there is no need to duplicate it, except to strengthen the EC' operation as well as the PURC and the Ministry of Power (MoP), due to their supporting roles. Also, emerging strongly from the in-depth narratives about the unnecessariness of the policy intervention relates to the fact that having all investment activities being approved under one roof is considered to be impossible. This is because the renewable energy investment circle in Ghana involves different phases, each with its different requirement. Therefore collapsing some phases is not possible especially, during Power Purchase Agreement (PPA) phase as it entails direct engagement of the investors.

'Is it even necessary if we have the energy commission to deliver that? That is going to be another cost on the process, because EC will still be there to regulate the sector which we are paying them for. Another body will also be charging for accessing their services and that also becomes another cost on the deployment of the technology. I don't think it is too big a role for the EC to deliver. But I think the energy commission is not also thinking outside the box to promote renewables' (Deputy Executive Director, ACEP).

'Negotiation for PPA cannot be done by somebody else. It is the investor himself that should do the negotiation. So, that I believe will be out of the equation. Again, when it comes to the environmental impact assessment, I believe the investor should be involved. We can have that for some of the processes but there are some others that the investor himself will have to be involved in' (Head, Renewable Energy Promotion, Energy Commission).

4.2.2 Establishment of a reliable and transparent full-cost tariff pricing system

The introduction of cost-reflective pricing of electricity has strong linkages with renewable energy investment and by extension, its development. The incorporation of this policy measure into the regulatory landscape has the propensity to attract more investments on renewable energy supply. Escribano (2010), observes that countries with cost-reflective electricity tariffs attract more non-hydrocarbon power producers due to the creation of equal play field for the energy producers. This regulatory instrument has the potentials to

cushion renewable energy power utilities against collapse since producers are assured of readily market on the basis of the equal ground being created to compete with non-renewable generators (Hertzmark, 2012). Proponents of this regulatory measure attest to its investment boosting drive for renewable energy in Ghana as captured in the view below.

‘It will be realistic and cost reflective tariffs. That is the plan. So PURC will be working with the consultant who will develop all this. The concessionaire comes in and knows that for the next 20 to 25 years this is the tariff structure we are going to use’ (MiDA Team).

However, the lack of implementation of this regulatory policy measure has been underpinned by the following opposing factors and their proponents.

4.2.2.1 Unaffordability argument

A major argument against cost recovery pricing is unaffordability. Prasad and Visagie (2005) argue that at full cost, tariff becomes relatively higher than what consumers would have been able to afford. According to the Department of Minerals (1998) if full cost is not well planned before its introduction, it does not only affect household income and consumers affordability levels, but the growth of the sector and the economy at large. Once full pricing of electricity reduces consumption, many people will shift to the use of unclean traditional energy sources (Mehlwana and Qase, 1998; Thom, 2000) thereby defeating the main purpose of promoting clean energy. Views from stakeholders siding with this unaffordability reason for the non-implementation of cost recovery pricing are captured below.

‘I think we know that renewables are more expensive than the conventional, looking at the financial considerations. Therefore if we bring in full cost pricing, the end user tariff will go high. We are in a situation where the average consumer cannot afford so we need to balance some of these things’ (Head, Renewable Energy Promotion, Energy Commission).

‘Even with the FiTs though the IPPs are complaining that it is not good enough, they are still higher than the regular tariff. So that is the cost as certified by the

PURC for the IPPs or the private developers who come in. It means that the issue about affordability is still there' (Chief Executive Officer, KITE).

'If the increase in thermal power is warranting increase in tariff, then adding more renewables to the mix is only going to push tariffs up. Are we ready for that? ... So I think there are other priorities' (Chief Executive Officer, KITE).

4.2.2.2 Electricity regarded as a public good

A major driver of the push against the establishment of a reliable and transparent full-cost tariff pricing system in Ghana is the tagging of electricity as a public good and the need for prices to remain low. Historically, government interferences in the power sector especially, in the developing world, have emboldened this assertion. There is now a game play on tariff settings in most developing countries, in which consumers clamour for low-tariff from politicians in exchange for votes (Barnett et al., 2016). Buttressing this widely held view of electricity being regarded as a public good are the following narratives from interviewed stakeholders.

'Yes. So we start from the perception of electricity as a public good. Then it means government has to have a hand in it... it means we the consumers also expect it to be cheap. You know, it's a right. Clean water? Yes. Good health, access to health care? Yes. Electricity? Not necessarily. Can there be a good quality of life without electricity? It's difficult but possible. Can there be a decent quality of life without clean water? Absolutely not. Can there be a good quality of life without access to health care? Absolutely not. But to me, electricity is a maybe. I can survive without electricity' (Chief Executive Officer, Solar Light Ghana).

'You see, it is one philosophy that hasn't helped the sector. I've said it on TV and radio several times, if we don't stop seeing the energy sector as a social service and treat it as business, we will run into this challenge. If you want to talk about social equity and how everybody has to have access, fine., but should not be treated as a public good' (Chief Executive Officer, KITE).

4.2.3 Full Implementation of the RE Act (Act 832) and its enshrined subsidiary instruments

An important policy initiative to overcoming the faulty power sector in Ghana to enhance renewable energy investment is the full implementation of the RE Act (Act 832) and its enshrined subsidiary instruments. Couture (2010), argues that countries that developed and implemented clear RE regulatory instruments such as FiT, net-metering, and RE fund have achieved impressive share of renewable energy supply in their energy mix. Regulatory instruments including FiT have been used worldwide to galvanise effective renewable energy development and at a lower cost (Ragwitz *et al.*, 2007; Butler and Neuhoff, 2008; European Commission, 2008).

Net-metering system also presents great opportunity for companies and individual households to contribute to renewable energy development. According to Beck and Martinot (2004), net-metering encourages individuals to ‘invest in renewable energy because the retail price received for power is usually much greater than it would be if net metering were not allowed and customers had to sell excess power to the utility at wholesale rates or avoided costs’ (p.16). The effect of renewable energy fund on renewable energy investment has been explored by Beck and Martinot (2004) as another regulatory instrument to incentivise investors to take opportunity of credit facilities, which in most cases have lower interest rates than those from mainstream financial institutions. Ghana’s RE Act (Act 832) embodies all these regulatory instruments, however, they have not been implemented fully and the factors obstructing their full implementation are discussed below.

4.2.3.1 Non-incentivisation Approach to RE Development

A critical factor militating against the full implementation of Ghana’s RE Act (Act 832) and its enshrined subsidiary instruments is the non-existence of incentive approaches to RE development in the country. Subsidiary instruments such as permits for mini-grids as concessions are important, however, Act 832, does not support that. An investor risks engaging in either developing a mini-grid or a net-metering system. The following

narratives sum up the paucity of incentives within the RE Act (Act 832) to boost investment.

'The truth of the matter is that when you come to the renewables, the approach has always been different even in matured democracies and matured countries like the UK and the US, they never went straight through the market route where you allow the market forces to determine the place of renewables. There were incentives mechanisms through the FiT with the obligation to pay. We cannot do otherwise because our scenario is even more complicated' (Chief Executive Officer, KITE).

'You see with mini-grid, our system is not structured such that you can be an off-taker at the same time unless you will be doing net-metering or own use. Even net-metering there is a cap. You don't go beyond a certain threshold else you become a permanent generator to the grid. The concept of net-metering is you are generating for home use first, but if there is some surplus you feed to the grid. The grid wouldn't pay you money but we would work out an equation where you can also draw the same energy' (General Manager, ECG).

'The net metering, nobody is going to pay you money. So you just offset what you are going to consume with what you can produce. So even if you have the capacity to do more, if you do more you are dashing it to the system. Assuming you are consuming 100mwh and you can produce 200MWh, you wouldn't get paid you but you pay for producing additional power than you have consumed' (Chief Executive Officer, KITE).

The FiT, which plays a key role in the attraction of investors into the renewable sector in other jurisdictions is confronted with a lot of uncertainties in Ghana. For example, its short-term guarantee years is a great disincentive as investors cannot really determine the fate of their investments after the guarantee year as voiced out by some stakeholders.

'Some investors have challenges with the feed in tariff. Some people say I am bringing solar with modified technology and you want to give me the same price as somebody who is using ordinary solar panels. If I am providing backups or

storage, would it be the same price as somebody who is just feeding into the grid and when the sun is down he is down? So those are the issues' (General Manager, ECG).

'We have the key issue as being the renewable energy Act, which says that the tariffs cannot be changed before 10 years. But then for investments like this, we are looking at a lifespan of twenty to thirty years. So if you are only guaranteed for ten years then what happens to the 10 or 20 years left? So this is some of the issues that hold back some of this investors' (General Manager, ECG).

The challenges surrounding the RE Fund also add to the numerous disincentives underlining the implementation issue of the RE Act.

'It (RE fund) is a very tricky issue... there are renewable energy projects that we are doing, that is the national rooftop project and all the money that is supposed to be sitting in the fund is being used for this project...' (Head, Renewable Energy Promotion, Energy Commission).

'I think nobody accounts for RE fund... we don't even know how much is in there. There is so much secrecy. If you go to the Energy Commission website, they don't give you how much is in the fund and which targeted areas it is meant for. So, there isn't transparency on the fund. I think that is also a major difficulty. In the past, they said it wasn't much but I think now it has been adjusted in the petroleum levies. I think we should try to see how they are using the fund. Whether it is adequate or inadequate' (Deputy Executive Director, ACEP).

4.2.3.2 RE not considered as an immediate priority by policy makers

Another factor accounting for the non-implementation of the renewable energy Act and its subsidiary instruments relates to the orientation of policy makers about what they view as energy security, as many do not consider RE as an immediate priority. Policy makers are presently more focused on meeting energy demands irrespective of whether the sources are harmful to the environment or not because of the country's prolonged power challenges. The short-term interventions for the prolonged power crisis failed to capture

the need for using renewables to address the power crisis. Similarly, while the medium-term strategy for attaining an energy security mentions the need for renewable contribution, it lacks clear targeting of how renewable energy should be developed as the following narratives from key stakeholders reveal.

‘Our primary focus, however, is to address the short term challenges without losing focus on our medium term development plans. To this end the Ministry is working on different Emergency Power arrangements to shore up the supply situation. These arrangements will eventually increase our generation capacity by about 1,000MW in the short term and ultimately provide us the platform to pursue the medium to long term solutions. We are hopeful that these measures will stabilise the situation. To achieve this, the following power plants are being pursued: - 250MW project at Aboadze, -2 x 225MW Power ship and -250MW GE Plant’ (Former Minister of Power of Ghana).¹¹

‘In the medium term, the Ministry is taking steps to add in excess of 3,000MW through the following projects: 360MW Asogli Phase 2 Project (sod has been cut), 350MW CenPower Project (Sod has been cut) 360MW Jacobsen Project (Parliamentary approval obtained for GCSA) 240MW Amandi Project (Parliamentary approval obtained for GCSA), GE 1,000 Project (Discussions ongoing) 1,000MW of ‘clean’ coal into the generation mix and use of solar in households and basic lighting and water heating to free grid power for industrial use’ (Former Minister of Power of Ghana).¹²

‘In this world there is a balance in everything. So you can get all the renewables in Ghana. Let’s say you do solar only, then at a point the sun refuses to shine and we have three days of continuous rain, are you saying Ghanaians should go without power? So those are the issues. Security of supply is also very key ...’ (General Manager, ECG).

‘So now the basic preoccupation is this... you go to the Ministry of Power (MoP) and they will tell you that all the countries that have developed didn’t bother about

¹¹ <http://www.peacefmonline.com/pages/local/news/201502/231810.php>

¹² <http://www.peacefmonline.com/pages/local/news/201502/231810.php>

the environment, but we are being forced to think about it, because of the era in which we are. So Coal is on the table, nuclear is on the table and renewables are capped at maximum 10%' (Chief Executive Officer, KITE).

'I wouldn't even advocate that we should build our energy futures on renewables. It's the energy for the future but when you are in a serious deficit, it will take you a lot more effort to be able to use the renewables to achieve that ... So, I am all for getting additional generation, but I think we should go for cleaner thermal plants and gas is the cleanest among the range of thermal options' (Chief Executive Officer, KITE).

4.2.3.3 Lack of political will

Self-seeking attitude of politicians and the lack of will to create equal opportunities for renewables downplay investment in the renewable energy sector. Pushing for personal agendas, against the wellbeing of the country results in severe developmental challenges and high costs. Such ill-motives and lack of political will create undue favour for investment in other energy technologies over investment in the renewable energies (Carmen, 2009). In respect of Ghana, many stakeholders argue that a fundamental driver of the lack of full implementation of the renewable energy Act (Act 832) is because of the lack of political will. In consequence, public and private investment in the sector has been stalled.

'You have one arm of government or ministry promoting a green agenda and the other doing something that contradicts it. Ghana signed up to the sustainable energy for all initiative and our president chaired something in the UN on sustainable energy and we are talking about coal. So there is a disconnect' (Chief Executive Officer, KITE).

'I don't even think the minister (former minister of power) thinks of the renewable option when he gets up. It is about how to get fuel and thermal plants running when you don't need fuel for renewables' (Deputy Executive Director, ACEP).

'We are where we are because the political drive is not strong. When we wanted KARPOWERSHIP barge to happen it happened, when we wanted AMERI power

barge it happened, when we wanted Bui we made it happen. Whatever we want to do we can make it happen if our drive is there. If we want to promote renewables it should be because we see it as our future... [but] strictly speaking, they have an election to win and they probably wouldn't bother about renewables' (Chief Executive Officer, KITE).

'...you can ask yourself if you have power crisis and they are considering solving it, over five years, renewable energy couldn't even feature and you see people rushing contracts to parliament, it is an emergency and a minister will write a whole brief on what makes it an emergency and they go and get the approval from parliament, emergency is supposed to be delivered in three months ...a year on it hasn't been delivered and the ministers are still pushing it for it to be delivered' (Deputy Executive Director, ACEP).

'I think as a country, we look more at numbers [votes during election] than at solving problems. More at numbers in the sense that as you do them, the benefit won't be within four years. But you need the numbers within four years. So let me go in for the cheaper solution where at the end of the four years I will get the numbers' (Coordinator, KASA-Ghana).

4.3 Lack of access to appropriate finance

Financial instruments remain essential ingredients for the development of renewable energy. It is therefore not surprising that governments and policy makers in developed countries create economic and financial incentives to facilitate the development of renewable energy technologies. According to Painuly (2001), credit subsidy was introduced in Denmark to finance renewable energy development for a 10 year time period. Other financial instruments such as tax exemptions, credit facilities and third party financing mechanisms are also introduced in other jurisdictions in developed economics to boost renewable energy investment (IEA, 1997). Credit facilities in the form of public benefit funds levied on energy consumption were introduced in the United States and some European countries to help push renewable energy development agenda. According to Beck and Martinot (2004) the public fund benefit was one of the most effective policies to have helped in the promotion of renewable energy technologies in

those jurisdictions. Incentive-based renewable energy programmes are other forms of financial instruments that encourage renewable energy development. The incentive base support for renewable energy technologies have been introduced in developing countries such as Indonesia and Sri Lanka by the World Bank. In Africa, micro-credits have also been introduced in Uganda and Zimbabwe (Painuly, 2001). Such credit facilities are mostly in the form of project financing and corporate financing (Wiser and Pickle, 1997). Sadly, access to appropriate finance in Ghana is a big challenge. This therefore, weighs heavily on the ability of prospective investors in the renewable energy sector and, critically the factors obstructing the existence of such opportunities need to be ascertained.

4.3.1 Low financial portfolios of domestic banks

A fundamental factor underpinning the lack of appropriate finance in Ghana and thereby affects renewable energy investment is the low financial portfolios of domestic banks. Despite those acknowledgements about the positive effect on renewable energy development, current financial portfolios of domestic banks cannot make the policy implementable. The low financial portfolio status of domestic banks put them at risk if they give out the type of huge credits that are needed by investors to undertake investment in renewable energy. This is because any non-repayment will cripple such financial institutions. The high rate of non-repayment of loans as a result of high risk of doing business in Ghana and most developing nations makes banks very cautious in giving out financial resources. Also, the current low portfolios of domestic banks do not encourage investors to take credit facilities due to the inability of banks to give long-term financial supports since they do not have the resources to do that.

‘There is a weakness in the banking sector. Most of our banks do not have the muscle to raise financing to support investors or investments coming in. So you will see that all the big financing comes from outside’ (General Manager, ECG).

‘Ghanaian banks are not bold. They do not also have the money. If you are having a 50 million project and you ask them for 10 million they can’t give that to you because if you don’t pay, the business will collapse’ (Deputy Executive Director, Africa Center for Energy Policy, ACEP)

The high risk of doing business coupled with the low portfolios of domestic banks makes accessing of loans difficult and expensive. This affects the pricing of electricity from renewable energy sources. This in turn affects consumers' willingness to appreciate the usefulness of the technology as it is perceived to be expensive relative to other technologies. At this point the appreciation about the environmental usefulness is totally absent in the consideration of consumers and this therefore creates the opportunity for investors to venture into other energy productions that they are assured of the profitability.

'The technology is still a bit expensive and you need to get a good feed in tariff before you can make good business. Unfortunately, we also don't have flexible financing schemes. We don't have appropriate schemes that one could apply to. We still have to deal with the same commercial banks (Ecobank, Standard Chartered, etc.) and they don't understand the investment aspect in the renewables. They are still doing short-term loans and loans with 30% to 35% interest rates' (Executive Director of KITE)

'If I go to the bank and say I've been doing [trading in solar] this for many years so give me money so that I can expand, I won't be able to survive under the terms. When I go to borrow working capital, I'm being charged something like 40%. Then you look at foreign investment' (Executive Director, Solar Light Company Limited).

This high interest charges on credit facilities and the inability of domestic banks to undertake long term financing are mostly as a result of macro-economic risk. The inability to charge loans at rate below the policy rate given by the central bank does not only make interest rate unbearable for investors, but makes foreign supports to domestic banks to relieve high interest for renewable investors absolutely impossible. Thus, it obstructs investment in the renewable energy sector. There is also the issue of lack of stability in the macro-economic indicators such as inflation and exchange rates.

'A lot has to do with macro indicators instability... because the risk attached to any credit is linked to inflation, currency appreciation or depreciation. So the macro economy is not right for the domestic credit. That makes it difficult for them to also lend for the terms that would allow the renewable to be viable... Even the fact that you are going to collect your tariffs in Cedi currency. Even if you have the highest

of tariffs, by the time you collect them you convert back to dollars, it would have lost value. So sometimes, when it's happening to the ECG and sometimes they increase the tariff after one to two years, it's not an increase in real terms. It is just restoring them to where they used to be' (Executive Director, KITE).

5. COALITION FOR CHANGE AND CONCLUSION

5.1 Coalition for change and imperative interventions for policy implementation

In this sub-section, stakeholders who hold strategic positions in selected civil servants associations, public and private institutions, were asked to indicate as to whether they support or oppose the potential policies identified as remedies to the binding constraints discussed in the above section.¹³ They included the Policy Officer (AGI); Senior Investment Officer (GIPC); Governance and Macroeconomist (KfW Bank); Country Economist (IGC); CEO (IGGS); Coordinator (KASA); Assistant Project Officer (KITE); Senior M&E Officer (MiDA); Director (PURC); Branch Chairman (PUWU); Director (Solar Light Company); Researcher (TUC); Market Research Officer (UT Bank); Senior Economist (PEF) and Programme Manager (GII),. They were further required to suggest alternative policies to the proposed ones irrespective of their positions in terms of support or opposition. Dominant suggested alternative policies represent coalition policies that are accepted by all and could yield similar results for change just like the initially proposed policies. These are depicted graphically below, with brief discussions of their implications.

Policies proposed towards the Off-Taker Risk constraint include privatisation of the revenue arm of the power sector, improved management of ECG including revenue collection, promotion of efficient technical practices within the distribution arm of the power sector through privatisation and establishment of a competitive off-taker market in the power sector. In respect of the faulty power sector regulatory constraint, proposed

¹³ The acronyms for these organisations are defined as follows: AGI -Association of Ghana Industries; GIPC - Ghana Investment Promotion Council; GII -Ghana Integrity Initiative; IGC –International Growth Centre; IGGS – Institute of Green Growth Solution; KASA –Kasa Initiative Ghana; KITE –Kumasi Institute of Technology and Environment; MiDA –Millennium Development Authority; PEF –Private Enterprise Federation; PURC –Public Utilities Regulatory Commission of Ghana; PUWU –Public Utilities Workers Union; Solar Light –Solar Light Ghana; TUC –Trade Union Congress; UT Bank –UT Bank Ghana Ltd

policies to overcome it included the establishment of a full time high level IPP facilitator, establishment of a reliable and transparent full-cost tariff pricing system and full implementation of the Renewable Energy Act (Act 832). On the other hand, policies proposed to overcome the lack of access to appropriate finance include the establishment of a RE financial instrument within domestic banks with lower interest rate.

The privatisation of the revenue arm of the power sector policy received high level support from majority of the institutions interviewed, with only PUWU, GII, TUC and Solar Light opposing this policy (Figure3). Various alternative policies have been proposed by these stakeholders from these institutions as capable of addressing the off-taker risk constraint. However, only stakeholders from GIPC, MiDA and IGC, who support the policy, and PUWU and Solar Light Company, who oppose the policy, have proposed a common alternative policy that can be considered as a coalition policy for change. This alternative policy to the privatisation of the revenue arm of the power sector entails guaranteeing the independence of ECG devoid of government interference. The strategy proposed by representatives of these institutions is to help expand the prepaid system to all public and private institutions in order for the ECG to be able to maximise revenue collection.

Figure 3: Coalition for Privatisation of revenue arm of the power sector policy

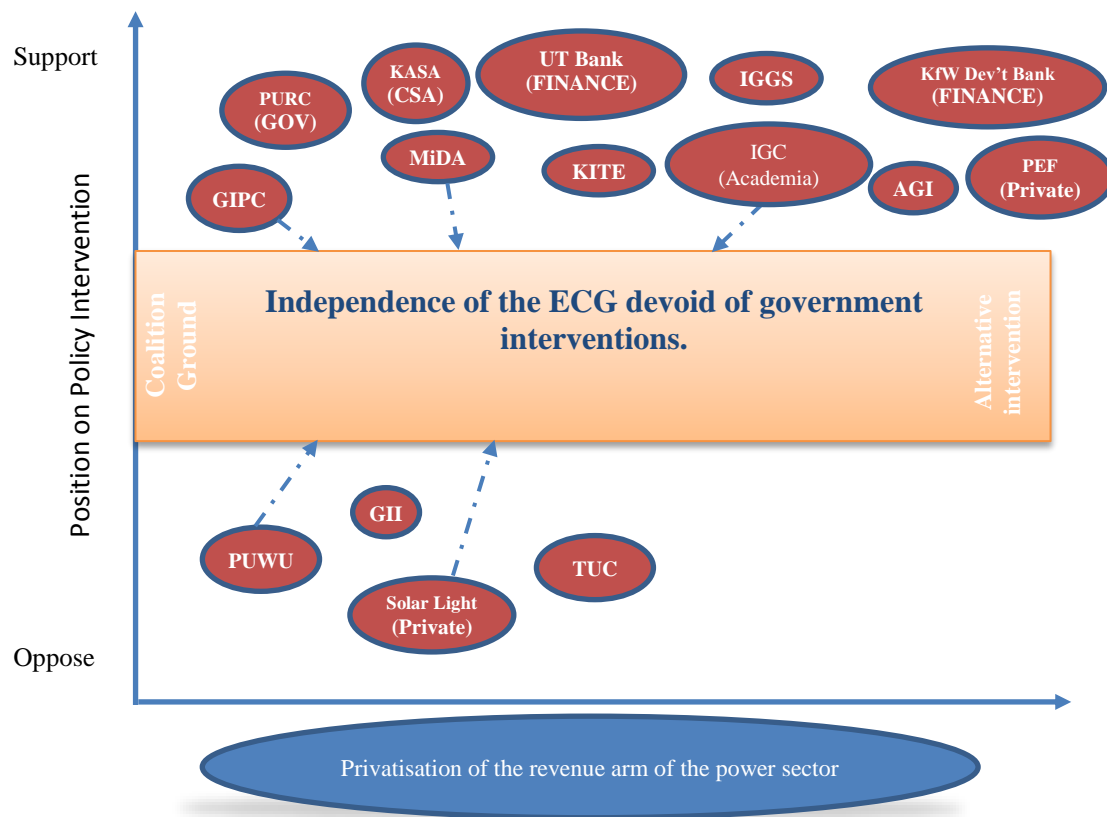
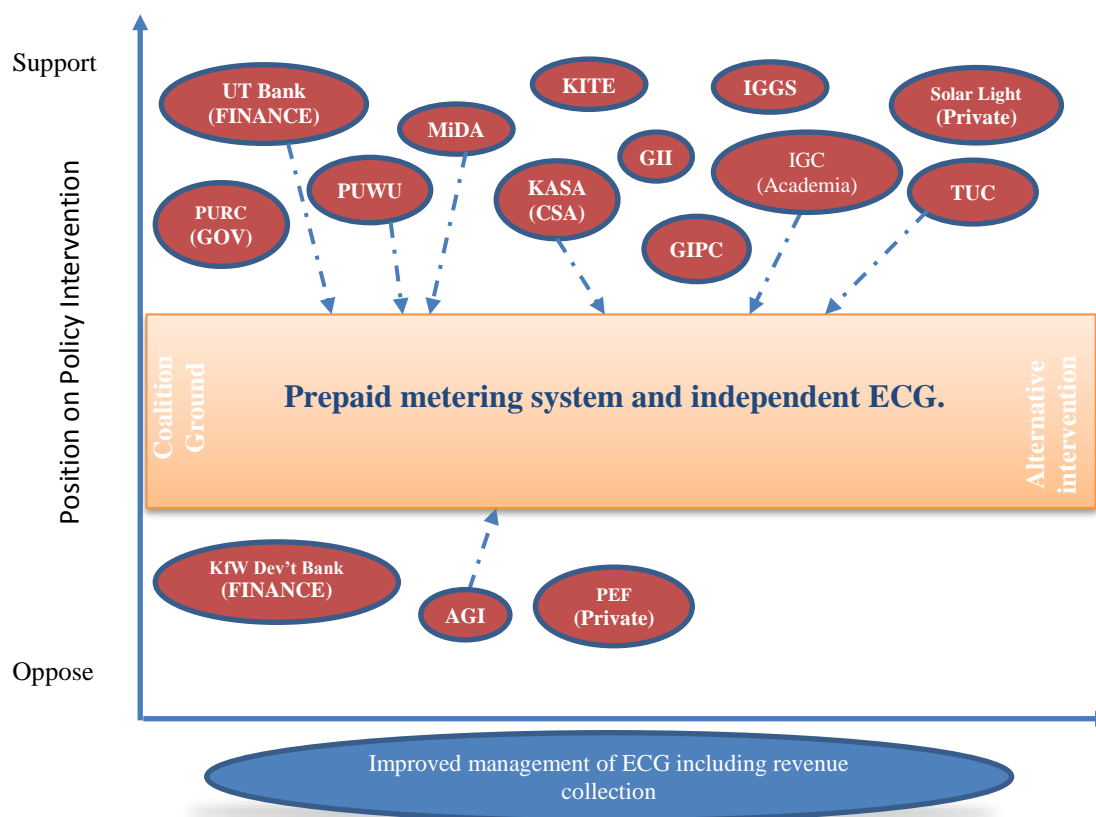
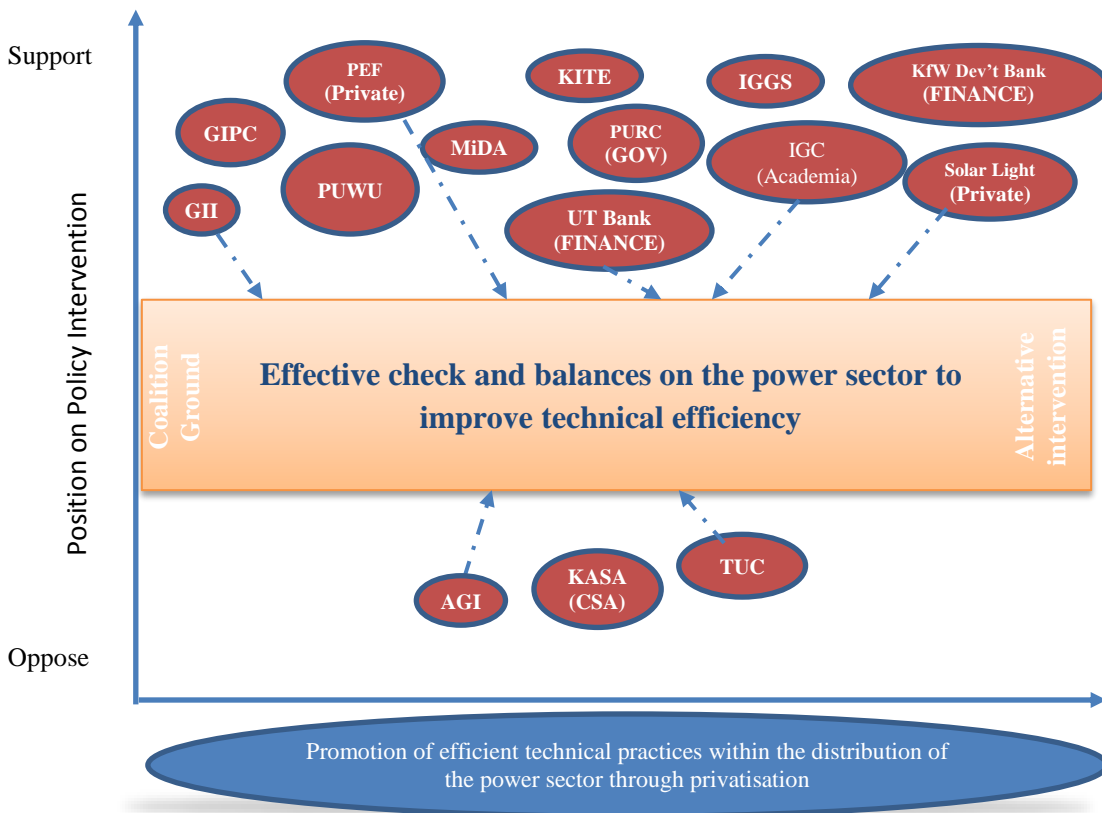


Figure 4: Coalition for improved management of ECG policy



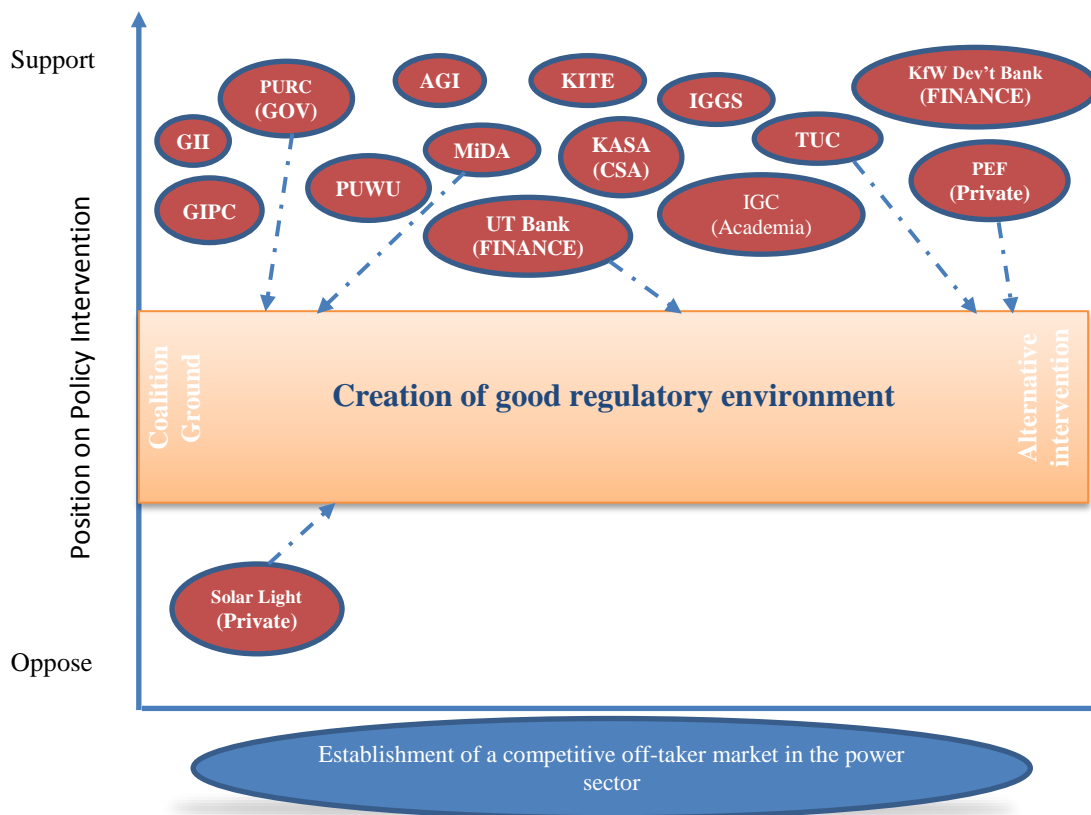
Similar to the privatisation of the revenue arm of the power sector policy, improvement in the management of ECG policy is widely accepted by majority of the institutions' representatives (Figure 4) as an important solution to the off-taker constraint. Only AGI, PEF and KfW Development Bank oppose this policy. The proposed alternative policy option is prepaid metering system and independence of the ECG, similar to the coalition policy for the privatisation of the revenue arm of the power sector policy.

Figure 5: Coalition for promotion of efficient technical practices within the distribution arm of the power sector through privatisation policy



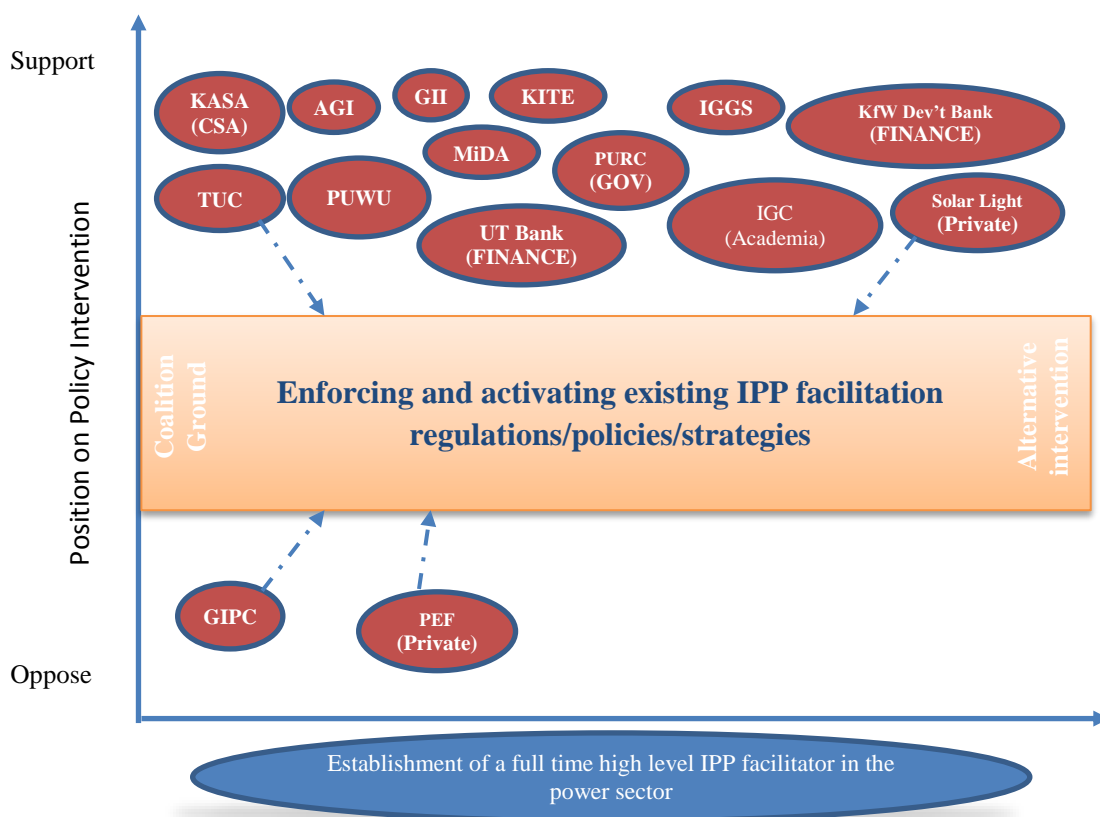
With the exception of AGI, KASA and TUC, all the other institutions gave overwhelming support for the promotion of efficient technical practices within the distribution arm of the power sector through privatisation. Despite the different ideologies, GII, PEF, UT Bank, IGC, Solar Light, AGI and TUC agreed that ensuring effective checks and balances in addition, on the power sector will improve technical efficiency (Figure 5).

Figure 6: Coalition for establishment of competitive off-taker market



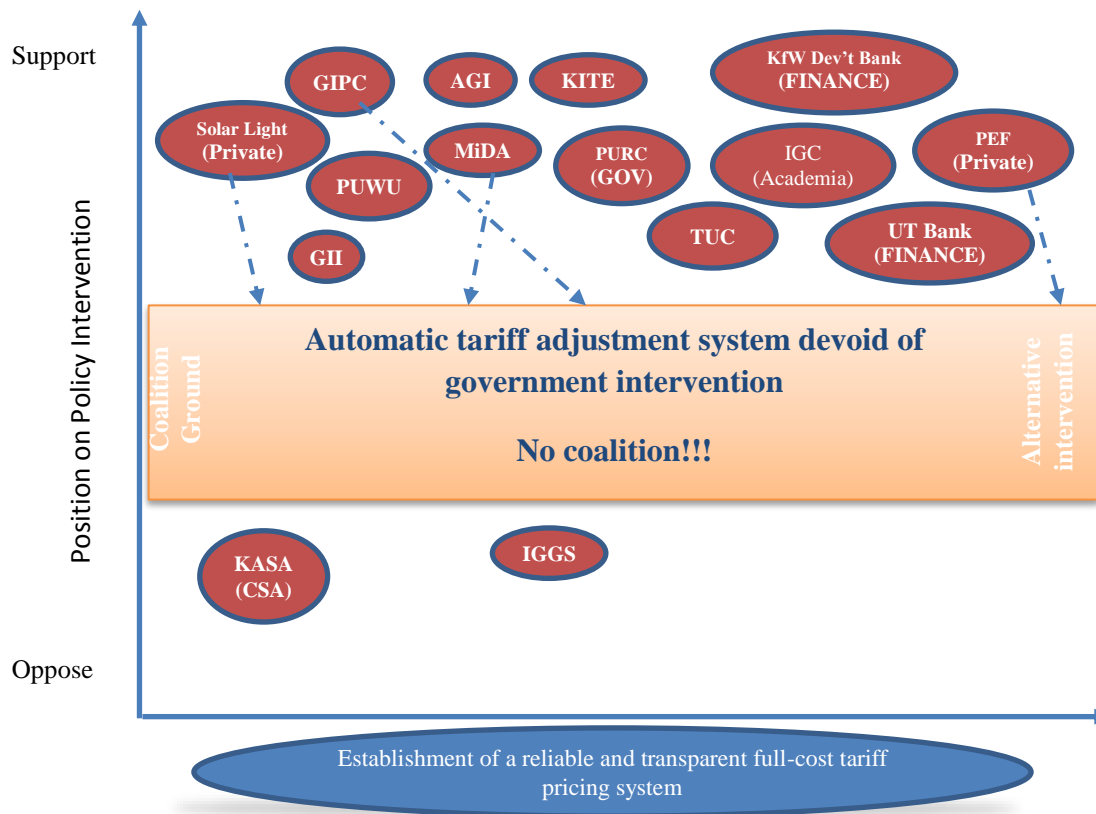
While all but one (Solar Light Company, Ghana) gave maximum endorsement for the establishment of a competitive off-taker market in the power sector, PURC, MiDA, UT Bank, TUC, PEF and Solar Light were of the view that the creation of good regulatory environment could equally achieve similar results in minimising off-taker risks in the power sector (Figure 6).

Figure 7: Coalition for establishment of a full time high level IPP facilitator in the power sector policy



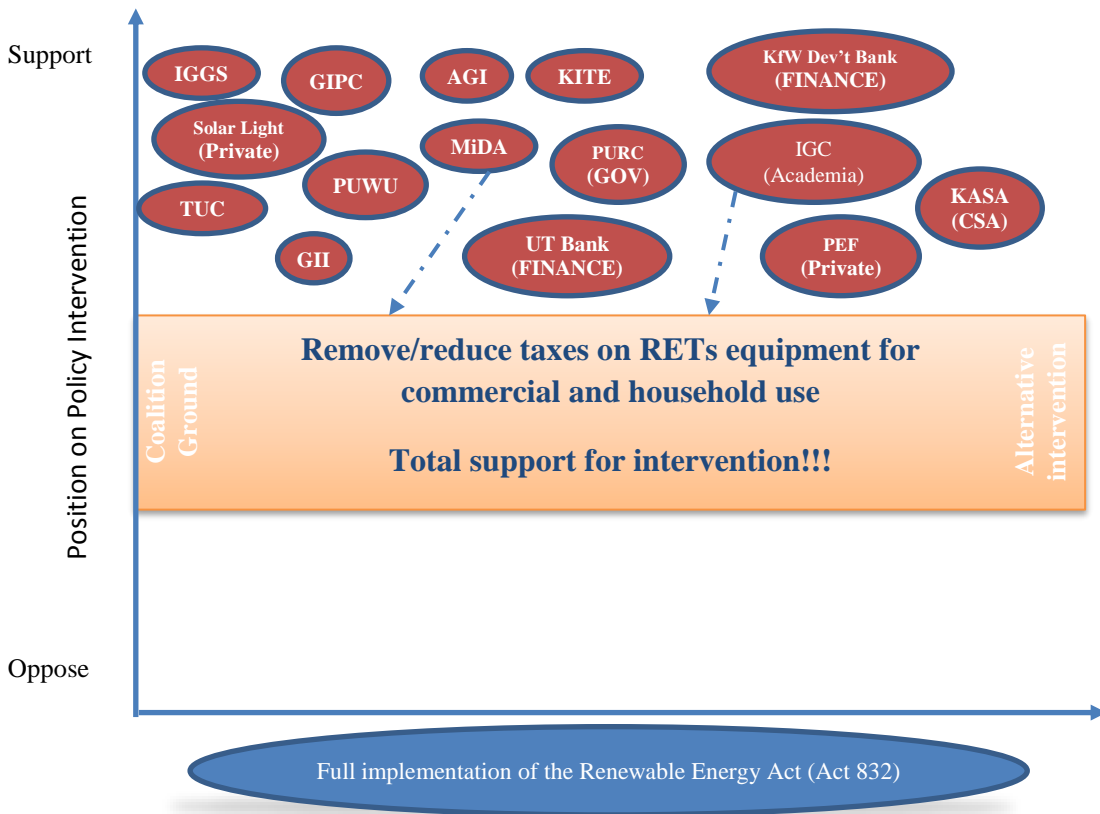
All the other institutions apart from GIPC and PEF are in support of the establishment of a full time high level IPP facilitator in the power sector (Figure 7). According to GIPC and PEF, a better option, which TUC and Solar Light company Ghana agreed to as an alternative policy to the one they support, is the enforcement and activation of existing IPP facilitation regulations and not the establishment of a new entity.

Figure 8: Coalition for the establishment of a reliable and transparent full-cost tariff pricing system



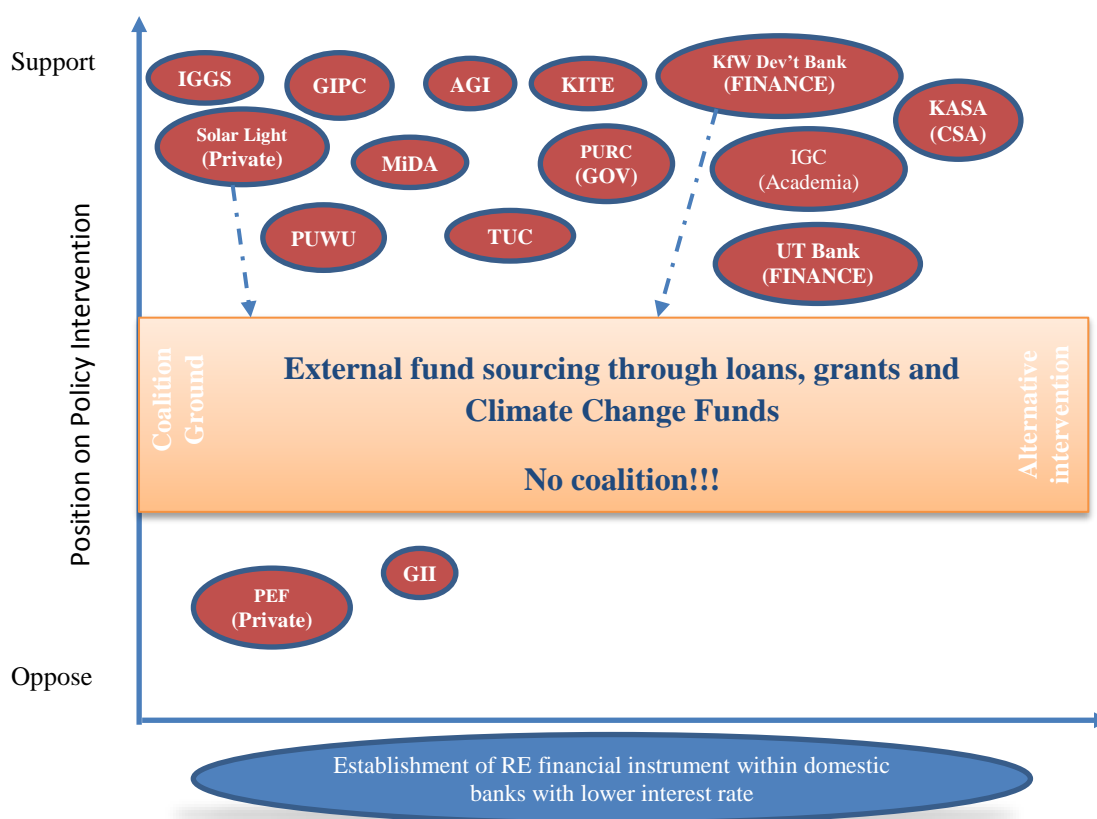
Majority of the institutions' stakeholders support the establishment of a reliable and transparent full-cost tariff pricing system to overcome the faulty power sector regulatory constraint (Figure 8). While GIPC, Solar Light Company Ghana, MiDA and PEF thought automatic tariff adjustment system devoid of government intervention is a viable alternative, none of the opposing institutions are in agreement. In effects, no coalition policies exist between supporting and opposing institutions.

Figure 9: Coalition for full implementation of the Renewable Energy Act (Act 832) policy



There is total support for full implementation of the Renewable Energy Act (Act 832) by all institutions interviewed. This is considered by all the institutions as a mean to overcome the faulty power sector regulatory constraint. Nevertheless, MiDA and IGC were of the view that reducing or removing taxes on RETs equipment is equally imperative.

Figure 10: Coalition for establishment of RE financial instrument within domestic banks with lower interest rate



The establishment of RE financial instrument within domestic banks with lower interest rate is a potential policy that could overcome access to appropriate finance's constraint. All the institutions except GII and PEF are in support of this policy. While Solar Light Company Ghana and KfW Development Bank proposed external fund sourcing through loans, grants and Climate Change Funds as an alternative mean to improve access to finance for RE projects, it is not very popular among other supporting institutions as well as opposing institutions. Apart from aforementioned two institutions, all the other institutions hold divergent views on alternative policy actions to the proposed establishment of RE financial instrument within domestic banks in Ghana. In other words, there is no common/coalition policy between supporting and opposing institutions of the proposed policy. The policy (establishment of RE financial instrument within domestic

banks with lower interest rate), however, is overwhelmingly supported by many institutions.

Having discussed the varied reasons why the RE sub-sector remains largely under developed in the midst of abundant potential policies to unlock the binding constraints to renewable energy investment in Ghana, it is imperative to identify interventions needed to help swing various interest groups unto a common agreement under each policy. This is to help harmonise the divergent views about the policies, as different institutions that either support or oppose the proposed policies suggest alternative policies that are regarded as coalition policies for change. Secondly it will help achieve a common interest about how to effectively address constraints and unlock opportunities for investment in the renewable energy sector. Presented in Table 5 are identified interventions based on the discussions above that are needed to unify divergent views about the policies together.

Table 5: Key interventions to achieve full implementation of potential policies

Constraint	Potential Policy	Interventions
Off-Taker Risk	Privatisation of the revenue arm of the power sector.	<ul style="list-style-type: none"> ➤ Encourage broad consultation and also make it reflective of the country needs. ➤ Undertake proper sensitisation about the need for the implementation of the policy.
	Improved management of ECG including revenue collection (especially revenue from debtors – government and others)	<ul style="list-style-type: none"> ➤ Government willingness to eliminate subventions and interference from the sector ➤ Encourage the development of comprehensive plans and strategies even before soliciting for financial aid especially, from donor organisations.
	Establishment of a competitive off-taker market in the power sector.	<ul style="list-style-type: none"> ➤ Political will to create the enabling environment for public, private sector participation to address the resource constraint of government. ➤ Embrace knowledge and technology diffusion
	Establishment of guarantee systems for power producers	<ul style="list-style-type: none"> ➤ Strengthen fiscal and monetary instruments to address macro-economic risks that necessitate demands of guarantee system in power sector. ➤ Make alternative security measures much enticing for investors.
Faulty power sector regulation	Establish a full-time high level IPP facilitator in the power sector.	<ul style="list-style-type: none"> ➤ Strengthen the Energy Commission of Ghana to become more autonomous and independent.
	Establishment of a reliable and transparent full-cost tariff pricing system	<ul style="list-style-type: none"> ➤ Eschew public good ideology created by politicians and promote energy efficiency programmes especially at rural areas to address affordability concerns.
	Full Implementation of the RE-Act and its enshrined subsidiary instruments (Net-metering, mini-grid systems, and the RE fund and levies)	<ul style="list-style-type: none"> ➤ Promote and implement findings of local research that unearth better ways to implement subsidiary instruments such as net-metering, mini-grid and Feed-in tariff. ➤ Synchronisation of all energy policies to determine how renewable energy will be rollout to eschew political favouritism against renewables.
Lack of access to appropriate finance	Establishment of RE financial instruments within domestic banks by Government with lower interest rates	<ul style="list-style-type: none"> ➤ Strengthening fiscal and monetary instruments in the country to reduce policy rates given to domestic banks and subsequently curb high interest charges on credit facilities.

Source: Author's construct, 2016

5.2 Conclusion

As indicated by Barnett *et al.*, (2016), there is no laid down guide in identifying the best approaches to address challenges being faced in the power sector. However, the ability to design and implement an appropriate intervention is heavily dependent on local research. From the discussion, it comes out clearly that there is a need to enhance efficiency and productivity within the off-taker market to help boost renewable energy investment in Ghana. This was identified to have multiplier or ripple benefits in the off-taker market as the ability to achieve that addresses objectives of other policies in the off-taking market. It is further observed that either approach i.e. privatisation or enhanced management of ECG can achieve the desirable result in the off-taker market, although the privatisation policy is heavily criticised due to the lack of broad-based consultation. On the other hand, the improved management policy turns to receive overwhelming acceptance due to its potential to achieve the results that are envisaged to be achieved through the privatisation mode, while addressing the concerns fueling the agitation against the privatisation policy. Despite the huge support base for both policies, some opposing and supporting institutions interviewed together, noted that an independent ECG devoid of government interference and effective prepaid metering system is the policy that could yield similar or better results. Likewise, effective checks and balances on the power sector and the creation of good regulatory environment have been advanced as key coalition policies for improving technical efficiency and competitive off-taker market respectively. Therefore, the way forward in addressing the off-taker risk is to have a hybrid privatisation process where both local and foreign investors can own shares but at ceilings which together are lesser than government of Ghana's share as well as ensuring the independence of the ECG from government interference, expansion of the facilities of the prepaid metering system, ensuring effective checks and balances and the creation of good regulatory environment in the power sector. These will enhance efficiency, credibility and productivity in the power sector, which in the long run, will promote investment in RE in Ghana.

The faulty regulatory challenges obstructing the investment within the renewable energy sector can be addressed effectively not only by the three identified promising policies (i.e.

establish a full-time high level IPP facilitator in the power sector; establishment of a reliable and transparent full-cost tariff pricing system; and full implementation of the RE-Act and its enshrined subsidiary instruments (Net-metering, mini-grid systems, and the RE fund and levies), but also by structuring the subsidiary instruments of the RE Act to be incentivising to the final consumer and investors. From the discussion, though the establishment of a full-time high level IPP facilitator and a reliable and transparent full cost tariff pricing system received high level of support from various institutions, enforcing and activating existing IPP facilitation regulations emerged as an alternative coalition policy to the establishment of a full time high level IPP in the power sector. In addition, the ability to make the net-metering, mini-grid systems, FiT, and RE Fund much more incentivising to encourage consumers and investors will facilitate investment in the RE sector.

The establishment of a RE financial instruments within domestic banks by Government with lower interest rates is a necessary step that could address the lack of access to appropriate finance in the domestic market to cushion investment in renewable energy. This policy was accorded very strong endorsement and support levels from various institutions with little oppositions. As the analysis revealed, there is the need for other macro-economic risks to be mitigated before it can attain its full effect.

APPENDICES

Appendix 1: List of stakeholders for the in-depth interview on identification of Ghana's binding constraints to RE investments

Category	Stakeholders
Investors	NEK (Ghana)
	Ghana Capital Partners
	Lekela Power
	Blue Energy Company
	VRA/NEDCO
	Biogas Technology
	Solar Light Co. Ltd*
Potential Investors	Private Enterprise Federation
	Sahel-Sahara Bank
	UT BANK*
	AGI
Non-Investors	Energy Commission of Ghana*
	Kite Ghana*
	Africa Centre for Energy Policy*
	Ghana Investment Promotion Center*

NB: * Stakeholders interviewed

Appendix 2: List of stakeholders for in-depth interview on discussion and analyses of the PE of Ghana's binding constraints to RE investments

Institution	Focal Person	Reason
Electricity Company of Ghana (ECG)	Managing Director*	Main off-taker in Ghana's power sector
KITE-Ghana	Chief Executive Officer (CEO)*	Policy Advocate in Energy, Technology and Environment sectors in Ghana.
African Center for Energy Policy (ACEP)	Deputy Executive Director*	Policy advocate and energy adviser
Millennium Development Authority (MiDA)	Team of three* 1. M&E and Economic Advisor 2. Energy efficiency & Demand side management Project Manager 3. M&E expert	Government arm in charge of Ghana's Compact Two
IMANI Ghana	Founding Director**	Policy Advocate
Trade Union Congress (TUC)	Deputy Secretary General**	Mouthpiece of Labour Unions in Ghana
Institute of Fiscal Studies	Senior Economist**	Adviser in Fiscal and Financial policies
Association of Ghana Industries (AGI)	President of AGI**	Mouthpiece of industries
Integrated Social Development Centre (ISODEC)	Executive Director**	NGO with special focus on human rights and social justices
African Energy Consortium	Chief Executive Officer (CEO)**	Policy advocate in energy related issues
Ghana Institute for Public Policy Options (GIPPO)	Chief Executive Officer (CEO) #	Policy Advocate
Energy Commission	Head, Renewable Energy Promotion*	Regulator of the power sector
Solar Light Ghana	Chief Executive Officer (CEO)*	Industry player
KASA	Coordinator*	Coordinates advocacy on dialogue on natural resources
Public Utilities Workers Union (PUWU)	General Secretary**	Steer the welfare of utilities' workers in Ghana

NB: * Stakeholders interviewed **#**Stakeholders that were quoted from other sources ******Stakeholders that could not be interviewed nor quoted

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